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ABSTRACT

During the 1987 World Health Organization's Regional Assembly, the Ministers of Health of the African States launched the Bamako Initiative, an effort aimed at reorganizing the health system to ensure universal, permanent accessibility of maternal and child health services. Three conditions were initially seen as necessary for success: improvement of service effectiveness, minimization of service costs, and assurance of service sustainability. Two West African countries, Benin and Guinea, started the process of implementing such a policy at a national level in 1986, even before the Bamako Initiative had been formulated as a strategy. This issue of "Children in the Tropics" presents reports of these two countries' experience with the Bamako Initiative, focusing on the strategies selected, field implementation, responsibilities at each level of organization, and the lessons learned in the course of work. Background information on the initiative is followed by discussion of: (1) the reorganization of primary health care in Benin and Guinea; (2) the process of increasing the effectiveness of primary health care; (3) minimization of the costs of primary health care; (4) assured sustainability of primary health care; (5) logistical support; (6) training and supervision; and (7) an information and management system for primary health care. Schedules, registers, cost lists, charts, and forms are included. (RH)

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THE BAMAKO INITIATIVE : PRIMARY HEALTH CARE EXPERIENCE

1990 - N° 184 / 185

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THE BAMAKO INITIATIVE : PRIMARY HEALTH CARE

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THE BAMAKO INITIATIVE : EXPERIENCES IN PRIMARY HEALTH CARE FROM BENIN AND GUINEA

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INTRODUCTION

Experiences in operationalizing primary health care in the 1980's have clearly demonstrated that the present approaches and strategies are not appropriate in the context of the current economic crisis. In this situation, the health needs of the population are rising, while the health services encounter increasing difficulty in responding to these needs. As a response, the Ministers of Health of the African states launched the Bamako Initiative during the 1987 WHO Regional Assembly. This Initiative aims for a forthwith reorganization of the health system in order to ensure universal, permanent accessibility to maternal and child health services. Three conditions necessary for reaching this objective are the improvement of service effectiveness, the minimizing of service costs, and the assurance of service sustainability.

These three principles are rarely integrated within the same programme. For example, the acceleration of the Expanded Program of Immunizations (EPI) in the context of Universal Child Immunization has succeeded in greatly improving vaccination coverage in Africa. However, the programme's success has been dependent on external aid, creating a problem of sustainability. Another example is the experiences with village health workers, low-cost primary health care systems which have remained ephemeral, due to the lack of support from the formal health system.

After two years, a more explicit definition of the Bamako Initiative has emerged. The revitalization of the health system, in particular at the community and district levels, represents the main objective in response to the priority health needs of the population. The success of this revitalization depends on several key conditions :

— sustainable financial resources, including community financing ;

— assured supplies of essential drugs and medical items ;

— active community participation in the management and delivery of services ;

— sound management to ensure effective interventions.

These conditions would assure :

— the presence of an operational infrastructure providing continuous delivery of priority health interventions, especially for women and children, including vaccination, treatment of diarrhea and of acute respiratory infections, prevention and treatment of malaria, growth monitoring, as well as other primary health care activities ;

— the conditions allowing for the high level of motivation among health workers and community members necessary for the support of these priority health interventions ;

— the reduction of morbidity and mortality.

The experiences presented in this issue suggest that the three conditions of increased effectiveness, minimized costs and sustainability can be fulfilled, as long as there is an active participation of the health staff and the communities. Analyzing the operational problems within the health system leads to the identification of appropriate strategies to increase the coverage with maternal and child health interventions. Rationalization of the supply and management of essential resources will be required for implementing these strategies. Finally, recovery of local operating costs and the local management of community financing systems will be indispensable for sustaining these activities.

It is clear that this assessment does not present a comprehensive analysis of all aspects concerning the Bamako Initiative, nor does it put forth a standard model for its implementation. It describes the attempts by two countries to specifically resolve their health problems within the severe constraints of the economic, social and political context.

The success of the Bamako Initiative is also dependent on a reorganization of the various levels of the support system, on the government's commitment, and on a more complementary relationship between international agencies.

These concepts have been and continue to be implemented in various national programmes and local projects : the Bamako Initiative aims to combine these experiences in a single unified and coherent policy.

Two West African countries, Benin and Guinea, started the process of implementing such a policy at a national level in 1986, actually even before the Bamako Initiative itself was formulated as a strategy.

This issue of Children in the Tropics presents the experiences from these two countries, focusing on the strategies selected, field implementation, responsibilities of each level and the lessons learned.

THE BAMAKO INITIATIVE

THE SITUATION IN AFRICA

Most African countries generate the majority of their revenue from raw materials. In a period in which world prices have collapsed, these countries have found themselves with bad trade deficits. The net flow of capital has been reversed, with the South now using more than half its export revenue to reimburse its debts to the North. Total debt amounted to US$ 147 million in 1987, representing three times the amount of development aid given to the third world. Thus, the world economic crisis has disrupted these fragile equilibriums, and has caused many countries to go bankrupt or default on their debt payments.

At the same time, structural adjustment programmes have been imposed in order to facilitate economic recovery in these indebted third world countries. These structural adjustment programmes may be able to stimulate long-term economic growth, but they have created drastic reductions in the social service budgets (education, health, etc.). Thus, the populations in these countries, already experiencing a devaluation of their household income, are placed in an even more precarious situation.

The book, Adjustment with a Human Face, and the report, State of the World's Children-1989, both published by UNICEF, have pointed out the direct and indirect implications of the economic situation and structural adjustment. These works have analyzed the social repercussions for the health and well-being of the vulnerable groups, mainly mothers and children.

During the last decade, the deterioration of the socio-economic conditions has been accompanied by a degradation of health status among women and children, and by an increase in the rates of malnutrition in the majority of African countries. Maternal mortality rates in Africa remain at 640 deaths per 100,000 live births. Infant mortality rates, which had dropped from 28 % to 12 % between 1950 and 1980, are now stagnating or even increasing in certain regions.

Africa is the only continent where the absolute number of child deaths (under five years of age) has increased since 1980, and has now reached 4 million child deaths per year. Yet, 80 % of the diseases directly responsible for these deaths can be easily prevented or treated through simple, effective, low-cost interventions. These interventions are at the heart of the Primary Health Care (PHC) concept, launched at the Alma Ata conference in 1978 and adopted by the vast majority of African countries. Yet, the health systems actually in place have shown themselves to be expensive relative to their impact. In addition, they are not sufficiently capable of meeting the needs of the population, nor of being sustained. The health system model tends to be highly centralized and made up of individual programmes which have their own strategies (e.g., vaccinations, leprosy control, tuberculosis control, malaria control, maternal and child health (MCH), and most recently AIDS). These specific programmes are planned separately and are not integrated into an overall health system.

These programmes are planned on the assumption that it is the target population that must travel to receive services, while these individual programmes often only respond partially to the population's needs. As the population has little input into the management of the health system, it has only a limited interest in its activities. As a consequence, coverage levels for the majority of interventions do not exceed 25 % of the target population. Even though health needs have increased in this period of economic crisis, special promotion and increased resources have only been made available for immunizations, under the auspices of Universal Childhood Immunization Coverage for 1990.

The reduction in health budgets has had serious effects on the functioning of the health system, especially where drug policy is based on the use of expensive, non-essential drugs. These drugs were procured under their commercial names, supplies were not always well managed, and prescription practices were often anarchistic. In 1985, total drug costs in third world countries amounted to US$ 9 million. For some of these countries, drug expenditures represented 50 % of the resources allocated to health. In many countries where these drugs are supposed to be provided to the patients free of charge, drugs are rarely available. The system has become progressively more paralyzed, due to the lack of drugs, material, and personnel. For example, the Beninese government health budget dropped from 10 % to 6 % of total government expenditures.

Unable to have access to quality medicine at an affordable price through the health centres, the population has resorted to supplying itself through private pharmacies or local markets. In private pharmacies, however, drugs are sold at very high prices relative to the population's purchasing power. At the local markets, all types of drugs of varying degrees of quality are sold, but without any control whatsoever. The poorer segments of the population are experiencing increasing difficulty in satisfying their basic needs. Several studies have shown that out-of-pocket expenditures for a single illness episode average over US$ 10, and these considerable amounts spent out-of-pocket are not being re-invested to improve the health system.

The economic crisis and the structural adjustment programmes in Africa have reduced both the family purchasing power and public resources. On the one hand, worsening socio-economic conditions and weak household purchasing power have lowered health status and have resulted in a drop in utilization of health services. On the other hand, the reductions in the governments' health budgets for functioning costs and drugs have caused a progressive paralysis of the health system and thus have reduced the supply of health care. This has created a vicious circle in which degradation of health status is reinforced by the health system's incapacity to address these needs.

This unfavorable situation calls for a reorientation of PHC policies. The health system must be made more effective, less expensive, and more sustainable over the long term.

THE MAJOR PRINCIPLES OF THE BAMAKO INITIATIVE

INCREASING SERVICE EFFECTIVENESS

Given the limited resource availability, it is essential to establish priorities among the various health activities. To maximize impact on the health status, health activities which respond to the most important causes of morbidity and mortality need to be identified. These health activities should be focused on the most vulnerable members of the population : pregnant women and young children. In the majority of African countries, priority health interventions consist of childhood vaccinations, pre- and perinatal care (including tetanus toxoid vaccinations), oral rehydration for diarrhea, treatment of malaria and acute lower respiratory tract infections, and monitoring of growth and development of young children.

In addition to these priority interventions, a range of curative activities responding to the population's active demand should be added, taking advantage of these contacts for curative care to promote preventive services. Integration of curative and preventive activities is indispensable if the beneficiaries of the health system are to receive the full package of activities they require.

By reorganizing the health system around the priority health interventions, it is possible to create solid foundations for a revitalized and viable health structure into which other interventions can be gradually integrated.

In order to maximize sanitary coverage of women and children, appropriate local strategies need to be identified from an analysis of current problems in health centre functioning. Health personnel, their supervisors, and the community need to identify bottlenecks in the achievement of coverage with priority interventions in order to determine what levels of the system are functioning poorly. Analyzing the specific causes will help in the choice of corrective strategies, their follow-up and subsequent strategy adjustment.

The microplanning of appropriate strategies should be carried out by local staff. This microplanning involves determining the answers to the following questions : which activities are to be implemented and who is their target population ? With what frequency should the activity be carried out and where should the service be offered ? What tasks make up this activity ? Who will carry it out ? What resources are required ?

MINIMIZING SERVICE COSTS

Limiting the number of drugs to a minimal list corresponding to the important health problems can eliminate useless and very expensive commercial-name drugs. Procuring these drugs under their generic name and packaged in large quantities will reduce the costs of brand names and commercial, individualized packaging. Drug procurement through competitive bidding in an international tendering procedure further minimizes prices.

If health centres are regularly supplied with essential drugs, the population will be less likely to resort to other sources, such as to the more expensive and more distant private sector, or to the local markets and traditional healers for which there is no quality control.

The drugs for diseases that are rare or benign (such as anti-fatigue drugs) can continue to be provided by the private sector or in specialized hospitals.

Health care costs are often increased, due to diagnostic errors which cause the patient to consult various providers, or to buy excessive or incorrect prescriptions. The development of guidelines for diagnosis, treatment and referral can improve the quality of decision-making and avoid wrong prescriptions that cause useless expenditures for the patients or the health services. These guidelines can be organized into decision trees (flow charts), facilitating the diagnostic process starting from the expressed complaint of the patient, and standardizing treatments and referrals.

In order to reduce the risks of waste and theft, a rigorous management of the health care delivery system has to be established. Community control and regular supervision will be two indispensable activities for minimizing expenses and for guaranteeing a transparent system.

ASSURING SUSTAINABILITY

Donor resistance and government incapacity to cover local recurrent costs requires finding other financing sources. Experiences have shown that community contributions to the financing of health care can generate sufficient revenue not only for restocking of drugs, but also for covering certain local operating costs. This revenue generated in the peripheral health system offers the possibility of sustaining not only curative care, but the entire revitalized health centre.

Community financing is one way of coming to grips with the incapacity of the current health system to respond to the population's health needs. Moderating mechanisms have to be built into the community financing pricing system to avoid excluding the poorest, while assuring generation of sufficient revenue to cover ongoing functioning costs. To assure affordability for the majority, prices have to be adapted to the population's capacity to pay. In a health system, some services are of higher priority. Using revenue from less essential care to subsidize more essential care can assure affordability of essential preventive and curative care, even for the poor. However, the community financing system should be able to take care of those truly indigent identified by the community's own cultural and economic criteria.

The community must be involved in the decision-making, strategy choice, and financing management and control of the health services. This active participation by the community is one guarantee of the system's sustainability, since the population, which helps finance it, is also a partner in assuring its functioning.

The principles of the Bamako Initiative were the basis for the reorganization of the health system in Benin and Guinea, where they sought to strengthen maternal and child health services. These principles, improving effectiveness, efficiency, and sustainability, can serve as guides for operationalizing the Bamako Initiative in other contexts.

THE REORGANIZATION OF PRIMARY HEALTH CARE IN BENIN AND GUINEA

BENIN - ITS HEALTH SYSTEM

Benin, covering 112,000 square kilometers, had a population of 4.3 million inhabitants in 1988. The crude birth rate is estimated at 50/1000 population and the infant mortality rate at 120/1000 live births [INSAE, 1987]. The gross national product (GNP) per capita was estimated in 1987 to be US$ 310 (State of the World's Children-1990).

The health system is composed of :

— village health units in a few villages that are not very operational ;

— communal health centres in 293 of the 500 communes in the country ;

— district health centres in 84 of the 86 districts ;

— provincial health offices in all six provinces.

There are also four provincial-level hospitals and one national teaching hospital.

In 1986, the health system was barely functioning. This low level of functioning was due to many factors. The Ministry of Health budget was only 750 FCFA (US$ 2.50) per capita per year. Of this budget, 80 % was used to pay salaries, leaving only 150 FCFA (US$ 0.50) per capita to cover operating costs and drugs. Moreover, this budget was disproportionally distributed, favoring urban areas over rural, and hospitals over basic health services.

The majority of health centres in the periphery experienced shortages of drugs and supplies most of the year. These shortages were exacerbated by wastage of available resources and the policy of using the limited drug budget (125 FCFA/capita) to purchase drugs considered non-essential by WHO (e.g., Heptamyl, Ozothine, Solicompher). In addition, instead of supplying the peripheral health centres, drugs were distributed preferentially to hospitals and to urban sales outlets.

With drug shortages in the health centres, health staff wrote prescriptions, often for multiple (5-10) drugs which the patient had to purchase in private pharmacies. A study carried out in 1987 showed that the average prescription in southern Benin came to 5,000 FCFA, but the actual expenditure was closer to 2,000 FCFA. This meant that only 40 % of prescribed drugs were actually purchased.

The population's geographic accessibility to the health services was limited, due to the lack of transport available to health staff for doing outreach in the villages.

The scarce resources that were actually provided to the health centres and the little revenue that was generated from payment for

consultations was being wasted and/or embezzled. The lack of control over movement of equipment and revenue excluded any possibility of rationally managing the health system.

Services were not attractive and were badly organized : for example, service schedules were not respected, vaccinations were not integrated into other primary health care activities, etc.

The supervision of health staff rarely occurred and when it did, it consisted mainly of an inspection. Supervision was limited to noting the lack of essential resources. It thus contributed little towards improving health staff skills and performance.

The population was conscious of the poor service quality, the excessive out-of-pocket costs, and the lack of management control. As a result, they only used the services occasionally.

In summary, bad service management and reduction of available resources due to economic crisis seem to explain the poor functioning of the health services in Benin. In order to tackle this situation, it was decided to restructure the Benin health system.

THE PROJECTS

This reorganization was directed by the national EPI/PHC programme, based on experiences from several projects in the country. For example, since 1983, the Pahou Primary Health Care Project has concentrated its activities on operations research, on management methods for PHC services at the village and commune level, and on organizational aspects of community financing.

Several other projects, financed through non-governmental organizations or through bilateral aide (e.g., the Swiss- and German-funded PHC projects, religious missions, etc.), had focused in the 1970's on strengthening health services at the district hospital level. However, since the 1980's, to reduce the overflow of patients at the district hospitals and to increase accessibility of care, these programmes have progressively expanded their efforts to the commune and village level.

The Dutch Government, since the early 1980's, has supported a village health worker (VHW) training project. The project initially concentrated on the village level, but its activities have progressively moved toward strengthening the communal health centres in four districts.

By 1986, a total of one in five districts were receiving external assistance for programmes aimed at strengthening management capacity at various levels of the health system. Although there are differences among the projects, they all have a health service cost recovery component based on the sale of essential generic-name drugs. For example, even though we commonly speak of aspirin, this is its commercial name ; the generic name is acetylsalicylic acid.

THE REORGANIZATION OF PRIMARY HEALTH CARE

Given the positive aspects of these different project experiences, Ministry staff and external partners agreed on the justification of reorganizing PHC. However, in order to ensure viable implementation on a national scale, a functional central structure had to be created to assure programme continuity, even after the end of

external aid. This central structure included a central drug purchasing unit, a drug distribution system, and a structure for supervision and training of health teams.

Through these projects, sufficient experience had been acquired to direct national policy. In addition, their ongoing status permitted the continuous enrichment of the national programme.

Since the obstacles encountered in the EPI programme had been similar to those encountered in maternal and child health services, the Ministry of Health deemed it inefficient to reorganize EPI in an isolated manner. EPI and MCH programmes were thus integrated.

Operational objectives for the reorganization were as follows. The first objective was to increase the percentage of the population benefiting from EPI and MCH activities by :

— improving availability of required equipment ;

— improving geographical accessibility for the population through ensuring nurses' outreach to the villages ;

— increasing utilization of the services, by building community confidence in the health centres through a continuous availability of drugs at an affordable cost ;

— allowing for full and timely health care coverage by active channelling of the target population and by creating for them the possibility of benefiting from various activities through any contact with the health system ;

— improving service quality by strengthening training and supervision activities ;

The second was to minimize functioning costs through :

— utilization of generic-name essential drugs ;

— standardization of treatments ;

— upgrading periphery staff's management skills.

The third was to develop a viable system that ensures sustainability of EPI/MCH activities, which includes :

— financing local operating costs through payment for essential drugs (at prices which would not exclude the poor) ;

— creation of community committees to be responsible for budgeting and financial management.

THE FOUNDATION OF PHC REORGANIZATION

In 1986 and 1987, the UNICEF-assisted national EPI/PHC programme undertook reorganization of PHC in 24 districts throughout the country. Two communal health centres were selected in each district, based on their having two health staff, preferably one nurse and one midwife, and their not already being part of another project.

These two years were used to establish a management structure for the EPI/PHC programme. Staffing at the national EPI directorate was increased in order to create a viable team responsible for tiered training and supervision, for logistical support for vaccines, drugs and other supplies, and for monitoring and evaluation. A technical coordination committee, composed of all technical directors in the Ministry of Health and staff from other relevant Ministries (Information, Planning, Education), was created and meets quarterly. At commune level, three-member Management Committees were elected, including a president and a treasurer.

In light of the various project experiences, certain technical choices were made : for example, a list of 40 essential drugs was drawn up, a fee schedule for treatments was established, management tools to collect information for health staff and Management Committees were developed.

To assure EPI/PHC programme implementation, UNICEF supplied pre-packed kits with essential drugs to cover six months' utilization for a commune of 6,000 inhabitants, means of transport, and EPI cold-chain and sterilization equipment.

Training of programme participants started at the top of the health system hierarchy and moved down.

In the health sector, the national directors in the Ministry of Health collaborated with an international team to develop a set of 12 training modules on PHC management. These modules were based on material prepared by the Pahou Primary Health Care Project, and were used in training District Medical Officers and communal health centre staff. This management training was complemented by a technical EPI refresher course.

District Medical Officers organized training for the Management Committee members. Training was based on a set of six modules, covering the tasks of getting the community involved, and administrative and financial management of the health centre.

A team of mechanics in each province was trained for vehicle maintenance, while a team of cold-chain technicians attended a training course in Lomé on repairing refrigerators and freezers.

During provincial-level workshops, health centre nurses participated actively in the construction of diagnosis and treatment flow charts for the most common complaints leading to health service use. These flow charts make it possible to standardize treatments for the most important diseases.

A common list of essential drugs was drawn up during programme planning, based on a consensus among the different organizations. This collaboration was institutionalized in 1987 in the form of quarterly meetings for the various bilateral, non-governmental, and international organizations supporting the health sector. These meetings are coordinated by the Ministry of Health.

PROGRAMME START-UP

Immediately following the arrival of two pre-packed drug kits and equipment in each commune during the first quarter of 1988, the EPI/PHC programme started in 44 of the 48 designated health centres. However, transport was delivered only in the second half of the year. Under the EPI/PHC programme and other projects in Benin, by 1988, close to one million people (25 % of the country's population) were benefiting from having their health centres reorganized along the Bamako Initiative principles. During that same year, the districts provided intensive supervision to the health centre teams, monthly in some provinces and bimonthly in others. Provincial-level staff also participated in this supervision, with a frequency varying between monthly and quarterly. The national team visited each health centre once during the year.

Three monitoring sessions were carried out at each health centre, in September 1988, February 1989, and June 1989. The latter two sessions also served as training sessions for the health staff in those centres to be included as part of the programme's extension.

By 1989, the EPI/PHC programme had been extended to an additional 100 commune health centres and 50 district health centres. Thus, with the UNICEF-assisted national EPI/PHC programme and other projects supported by WHO, the World Bank, the Swiss and German Cooperations, the African Development Bank, the European Development Fund, etc., the reorganization of peripheral health services touched 300 communes, representing 75 % of the population.

CONTRAINTS

Numerous problems emerged during the programme to impede its effective start-up.

It took more than a year to get a National Programme Director nominated and a Ministry-level team created. This time was also needed to convince the different partners to get actively involved in the reorganization of PHC. Programme funds only became available in mid-1987, six months late. However, this period was employed to order and distribute PHC equipment as well as to develop training modules and the information and management systems.

An initial budget reduction had made it necessary to limit programme implementation to only 24 districts : four in each of the six provinces. However, to meet the deadline for the objective of universal child immunization set for the end of 1990, it was necessary to ensure extension of the programme to 200 health centres by 1989.

It had originally been planned in 1986 that each District Medical Officer would be seconded by a physician trained in PHC management and that a full-time physician for supervision would be added to each provincial team. However, the freeze on hiring had blocked these assignments and an intermediate solution was implemented : assigning one District Medical Officer involved in the programme to each province to be the "support physician". Furthermore, the management and information systems had to be simplified to reduce the workload of the nurses.

GUINEA - ITS HEALTH SYSTEM

Guinea, with its population of 6.5 million (1988), extends over a geographical surface of 245,857 square kilometers. Birth and infant mortality rates are high, at 48 per thousand and 160 per thousand respectively [MOHPP]. GNP per capita was estimated in 1983 to be less than US$ 300 per inhabitant [World Bank].

Since 1986, the country is divided into five administrative regions : four natural geographic regions and Conakry. Below the regional level, there are 36 prefectures and 337 sub-prefectures. For health, each region is under the leadership of a regional health inspector, each prefecture under a prefectural medical director, and 300 health centres serve the sub-prefectures (SPHC).

A team of Ministry of Health directors and donor agency representatives carried out an evaluation of the EPI programme in Guinea in 1986. This team identified three major problems : lack of resources, poor functioning of the health system, and deficient management.

Lack of resources

In addition to the poor condition of most health facilities, the major obstacle for the proper functioning of the health centres was the lack of resources. Shortages of fuel and spare parts paralyzed vehicles and hindered regular supervision and distribution of supplies. Vaccine storage capacity at the intermediary level was too limited. The cold-chain was ineffective, due to the scarcity of fuel and spare parts for refrigerators.

There were severe drug shortages throughout the country. A 1984 World Bank estimation stated that the drug supply was covering only 10 % to 30 % of the country's needs. Since 1984, the situation has deteriorated even further.

Causes for these drug shortages included the lack of financial resources and foreign currency at the Ministry of Health level, the poor condition of storage and distribution equipment (vehicles, warehouses, etc.), and improper management at health centre level. At the national level, the choice of drugs to be purchased was not always based on efficacy and low cost criteria. Wastage was evident at all levels of the health system.

Poor functioning of the health system

The absence of basic equipment and essential drugs led to low health facility utilization at the periphery. This was confirmed by data from health registers and the vaccination coverage survey carried out in three regions : only 5 % of the children between the ages of one and two years were completely vaccinated. Mothers of partially or unvaccinated children stated the absence of regular vaccination services as the reason.

Deficient management

The visits to the health centres brought to light a lack of management and administrative training at the peripheral and intermediate level. The limited resources were not always used in the most efficient manner.

PRINCIPLES FOR REORGANIZING PHC

Guinea adopted the principles underlying the Bamako Initiative for several reasons. Those involved in the 1986 EPI programme replanning, realized that the only way to increase coverage for vaccinations and other MCH activities was to restructure and revitalize all health services at the periphery.

In the context of Guinea's decentralization policy, the State Secretariat for Decentralization (SSD) had set up a system where part of local tax revenue would be used for micro-projects at the local level.

Due to the limited government resources available for health, a cost recovery mechanism for operating costs became essential. The team responsible for replanning the EPI programme proposed designing a national programme that integrated EPI with other PHC activities, including an essential drug policy. This national programme would be based on the Bamako Initiative principles and would draw on the experience of the Pahou PHC Project in Benin.

The resulting document for EPI/PHC reprogramming proposed similar strategies to those of the EPI/PHC programme in Benin. These strategies were aimed at increasing the percentage of the population benefiting from EPI and other MCH activities. The document also outlined :

— an initial list of priority interventions and essential drugs ;

— a proposal for a fee schedule ;

— a list of equipments and means of transport ;

— a system for the supply and distribution of drugs, vaccines and other materials ;

— a system for local-level management (monitoring) using the model proposed by the Pahou PHC Project in Benin ;

— an inventory of training needs.

The start-up costs for the programme were estimated, and health centre costs and revenue were projected. Under the hypothesis of 0.5 consultations per person per year, these estimations confirmed the viability of the programme. In February of 1987, the document for EPI/PHC replanning was completed, with the addiion of a plan of operations.

THE BASIS OF THE REORGANIZATION

In 1987, a National Coordination Unit for the EPI/PHC/ED (Expanded Programme of Immunization/Primary Health Care/Essential Drugs) was formed. Members of this unit included a national coordinator, a director and deputy director for EPI, an Essential Drug manager, and an administrator/accountant. A team of six technicians responsible for the cold-chain, stock management, equipment distribution, and health statistics supported the unit.

A technical committee, headed by the Director General of Health, was mandated to assure the coordination among the different health divisions and prefectural directorates, to monitor the progress of the programme, to identify bottlenecks, and to recommend course corrections.

Four technical commissions, made up of other Ministry of Health directors, were responsible for drawing up annual plans of actions and for providing support to the National Coordination Unit in the following areas :

— logistics and distribution : cold-chain and vaccine distribution, vehicle fleet maintenance, infrastructures, and essential drug supply ;

— training and supervision : technical training (EPI, ORT, etc.), training on flow charts, training in management, and developing a national supervision plan ;

— monitoring and evaluation : identification of indicators, revision of MCH cards and health booklets, development of drug registers and account books, implementation of the local monitoring system ;

— community participation and social mobilization : training of Management Committees, training of local authorities in supervisory techniques, development of a community financing system, and training of staff from the State Secretariat for Decentralization involved in the EPI/PHC/ED programme.

Each health centre included in the first phase of the programme was to have an elected local Management Committee. The State Secretariat for Decentralization established eligibility criteria for the members of these Management Committees and delineated the role of each member. In 1987, these committees' first task was to organize the communities to restore and renovate the health facilities.

In 1987, implementation of the programme started in two of the four natural regions : the Forest region and Upper Guinea. Two health centres, one rural and one urban, were selected in each prefecture. Community involvement in health centre rehabilitation was one pre-condition for a health centre to be included in the programme.

Training

Four types of training programmes were carried out in 1987 :

— the Prefectural Health Directors received a 15-day training in PHC management in the EPI/PHC/ED context ;

— the State Secretaries for Decentralization and the sub-prefects (local administrative authorities) received a one-week training in community financing ;

— cold-chain technicians attended a one-week refresher course in refrigerator maintenance and vaccine stock management ;

— the health centre directors, the Prefectural Health Directors, and hospital directors received training in PHC management at health centre level.

The National Coordination team organized and ran these training sessions, using 12 modules on PHC management which had been

developed with the participation of Guinea health officials. Equipment and other resources required for implementation of these activities were ordered by UNICEF.

PROGRAMME START-UP

In 1988, health centre directors received a one-week refresher training course preceding the launching of the programme. During the same week, the local Management Committees received a briefing session on the cost-recovery system, the financial management documents, and social mobilization and active channelling activities for pregnant women and children needing vaccinations. During the entire start-up phase, the Prefectural Health Director and a member of the National Coordination Unit offered intensive support to health centre staff.

At the end of 1988, the EPI/PHC/ED programme involved 98 health centres ; 62 depended exclusively on the national programme for support and the remaining third received assistance from other donor agencies. Also in 1988, the health information system was put in place and supervisory activities were started.

In 1989, the health centres in Upper Guinea and in the Forest region carried out two monitoring sessions, while the centres in middle and lower Guinea carried out one. Following each monitoring sessions, budgets were drawn up.

The expenditures budgeted are expected to be incurred in the beginning of 1990. The EPI/PHC/ED programme also plans to integrate 72 additional health centres. Also in 1990, the programme will extend to other levels of the health system. At the village level, traditional birth attendants will be incorporated. At the level of the peripheral hospitals, reorganization will follow a similar process to that used in 1986 for the reorganization of health centres : identifying problems and selecting and planning strategies.

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CONSTRAINTS

Preparations for launching the programme took much longr than expected, in part because of the deplorable conditions of the health centres to be rehabilitated. Shortages in material resources caused considerable delays in the delivery of vaccines and fuel supply. The programme implementation schedule had to be phased in order to be able to include two centres in each prefecture right from the start.

Programme extension encountered personnel problems, as several health centres were understaffed. Furthermore, as no functional support structure existed at the regional level, the national team has had to travel often to the periphery. Attempts are now being made to strengthen capacities at the regional level for training, supervision, and monitoring.

THE RESULTS IN BENIN AND GUINEA

The results in Benin and Guinea are encouraging, with regard both to service utilization and to community financing.

In Benin, during the first quarter of 1988, 44 health centres started operating along the lines of the Bamako Initiative. Figure 1 shows the increase in service utilization in these 44 health centres between 1987 and 1989. The average monthly number of curative

consultations has tripled, from 72 to 203. This increase in utilization most likely reflects the population's response to drug availability. The 45 selected essential drugs have been present nearly without interruption at these centres. A similar trend has been observed in maternal and child care : between 1987 and 1989, the average number of prenatal visits has increased from 20 to 35, and deliveries have increased from 14 to 21 per month. Could this be an indication of a general revitalization of these centres and a corresponding upsurge of communities' confidence in the health system ?

The results from the monitoring sessions carried out during the second semester of 1988 and first semester of 1989 have confirmed these trends. For these centres, the average percentage of the target population that is completely vaccinated has increased by 38 % for pregnant women and 50 % for children having reached their first birthday. Similarly, the average percent of women having made at least three prenatal visits has increased by 40 %.

In Benin, a study of costs and revenue for the first semester of 1988 shows the capacity of community financing to cover certain operating costs (Figures 1 and 2).

The average operating costs for a health centre is US$ 5,020 : US$ 645 relate to drugs and information system costs, US$ 910 for other local operating costs, US$ 2,255 for salaries, and US$ 1,210 for vaccines and equipment amortization.

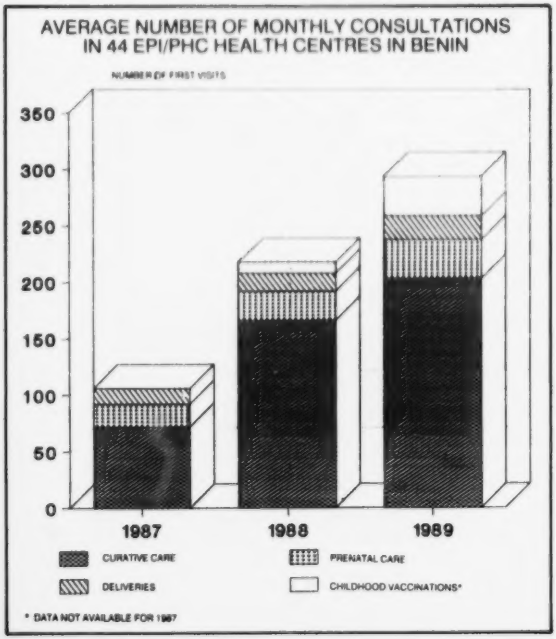

Figure 1 : Service utilization

Salaries make up 45 % of total health costs. The Government has been responsible for financing salary costs, even before the system was reorganized. However, the suppression of financial incentives and the delays in paying salaries have led to strikes. The 24 % of total costs relating to amortization and vaccines are covered by external aid.

After these external and government contributions, there remains a balance of local operating costs of US$ 1,555 (31 % of total costs). To cover these costs, each patient pays an average of US$ 1.37 for each consultation/treatment. The actual average cost for drugs and information tools comes to only US$ 0.44 per consultation.

Health centres generated, on the average, US$ 2,166 in revenue. With this revenue, most health centres were able to finance the resupply

of drugs and information tools, and other operating costs. In fact, the 44 health centres were able to cover an average 139 % of their costs (US $ 2,166/US $ 1,555). In fact, in 40 of the 44 centres, cost recovery was better than 100 %, signifying complete recovery of operating costs and some extra to create a reserve fund or finance other health activities considered priority by the population. This US $ 2,166 revenue coming from community financing could cover 43 % of the overall costs of health centre operations (US $ 5,020).

In Guinea, operating costs and revenue were analyzed for 73 health centres which had been operating under the Bamako Initiative principles for a year (Figure 3).

For the period from November 1988 to April 1989, the average functioning costs came to US $ 5,217 per centre. US $ 1,319 was for drugs and information tools, US $ 1,049 for other operating costs, US $ 2,382 for salaries, and US $ 467 for amortization and vaccines.

The portion of total costs devoted to salaries was similar to that of Benin (46 %). However, in Guinea, this amount reflected a larger number of health workers, but who were paid lower salaries. These low salary levels acted as de-motivating factor for health staff. The local operating costs were proportionally larger in Guinea (45 %), due to a higher utilization in the health centres, and thus a higher drug consumption.

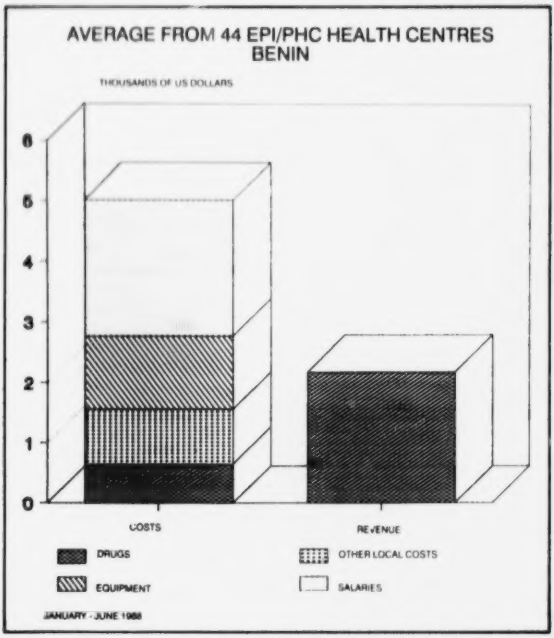

Figure 2 : Revenue and costs

In Guinea, the average cost to the patient for a consultation was lower than in Benin, US $ 1.10, due to lower prices. The actual costs of drugs and information tools came to US $ 0.58.

Health centres in Guinea generated an average of US $ 2,439. With this sum, they were able to cover their drug supply and information costs (US $ 1,049). However, revenue was not always sufficient to cover the other operating costs. In only 40 of the 73 centres was cost recovery higher than 100 %.

In Guinea, community financing revenue (US $ 2,439) covered 47 % of overall costs (US $ 5,217).

Two years of implementation of the Bamako Initiative principles seem to show that they respond to the population's demand, although efforts still need to be made to improve coverage further. Even with affordable

treatment prices for the population, revenue generated from the community financing was able to cover almost half of total health service costs in the periphery and was able, in most centres, to cover local operating costs.

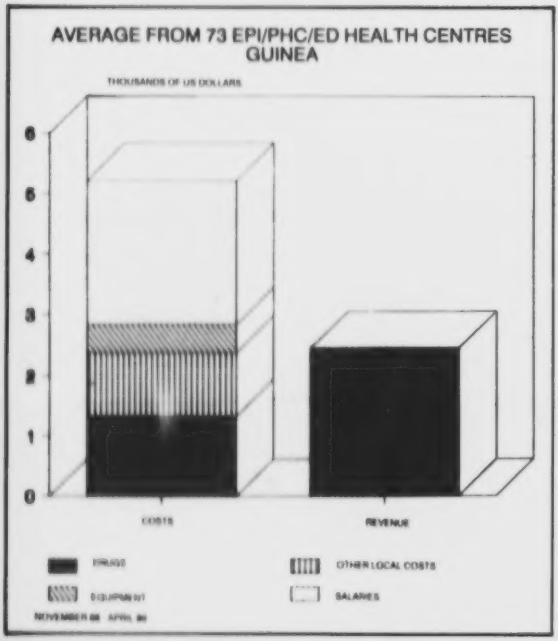

Figure 3 : Revenue and costs

INCREASING THE EFFECTIVENESS OF PRIMARY HEALTH CARE

INTEGRATION OF ESSENTIAL ACTIVITIES

SELECTION OF ACTIVITIES

In both Benin and Guinea, priority activities were initially selected, based on three criteria : epidemiology, the population's perception, and feasibility in relation to resource availability.

Based on the epidemiology, a coherent package of health activities was selected, aimed at reducing mortality and morbidity of women and children. This package included treatment of malaria, pneumonia, and diarrhea, as well as vaccinations against measles, whooping cough, tetanus and tuberculosis. These activities directly address more than two-thirds of the causes of infant and child mortality. Similarly, pre-and perinatal care activities were chosen in order to prevent complications during pregnancy and delivery, the principal causes of maternal mortality.

Certain less essential curative treatments, e.g., treatments for intestinal parasites or gastritis, were also integrated into the programme. These treatments correspond to certain demands expressed by the population and by offering them as well, the population will regain confidence in the health system.

When choosing activities to be integrated into the existing system, it is important that their implementation not require a significant increase in resources. For example, treatment of lower respiratory tract infections was included from the beginning. Implementing these treatments would require little beyond the investments required for the already planned rationalization of curative care and essential drugs supply. In contrast, Caesarian sections were not included. Notwithstanding their potential effect on maternal mortality, requirements in obstetrical surgery training and supplementary equipment would necessitate too large an additional investment.

Growth monitoring of children was not included in the first selection of priority activities, as the lack of understanding of the specific causes of malnutrition made identification of effective actions difficult.

REORGANIZATION OF MCH SERVICES

MCH services needed to be reorganized so that any children or women making contact with the health system receive all indicated interventions, even those beyond their expressed demand. For example, mothers do not always perceive the need for preventive interventions such as vaccinations or growth monitoring. Thus, these interventions may not justify the effort to bring a healthy child to the health centre. As these children would only be examined in case of an illness, one should take advantage of these visits to identify other needs for that child, and be able to immediately respond to those additional needs (such as vaccinations).

In Guinea, for example, a screening site created at the sole entrance of a health centre facilitates the identification of services required by each person as they enter. Each patient receives an individualized routing through the health services. Easy access to the various services is ensured by locating them all in one building in a logical order. After screening at the entry, all services are located in series : the curative examination room, the pharmacy, the injection room, the vaccination room and the prenatal room. This way, all patients/clients, without any additional effort on their part, come in contact with other services they might need, while receiving the care which brought them to the centre. There is no longer a weekly schedule and all key services are offered every day during all opening hours. Personnel constraints have forced some centres to allocate several activities to a single health worker. This transformation of health workers into multi-purpose workers required giving them additional training in all of the specific technical skills. Information tools, like the health booklet, make it possible to register the different services provided during a single visit onto only one document.

Integrating activities helped rationalize the use of human and material resources. By integrating vaccinations, MCH and curative activities, the entire health system was able to benefit from the logistical report provided by EPI. Thus, the health system was finally able to respond simultaneously to all needs, and with services of a better quality.

Responding to the population's high demand for curative care is used to promote preventive services. Moreover, the active demand of women for prenatal care makes it possible to assure they receive tetanus toxoid vaccinations, anemia prophylaxis, malaria prophylaxis, and identification of high-risk pregnancies. All of these activities help reduce the risk of maternal mortality.

MONITORING

Monitoring is a periodic follow-up of programme implementation. It can be used as a management tool at the local level to increase coverage when it is executed by the health staff responsible for these activities. Monitoring checks whether the programme is progressing in line with its objectives. This way, monitoring helps identify problems as they arise and can facilitate the selection of local corrective action. Monitoring becomes a real management tool when it addresses operational problems in the services. The epidemiological impact of these services on the community is better assessed by epidemiological surveillance. Coverage has been chosen as the focus of monitoring because it reflects service efforts to protect the population. Coverage is defined as the percentage of the target populationhaving received a needed intervention of correct quality. In this context, the term "target population" indicates the group towards which a specific activity is directed.

The health workers in Benin and Guinea used the same model in analyzing their coverage problems with MCH/PHC activities. This model is constructed to assess coverage over time. Because its

indicators are sensitive to the possible effects of corrective action, use of the model facilitates adaptation of actions in function of the obtained results.

Although any health centre activity can be monitored, the focus should be on the priority PHC interventions. In the two countries, monitoring concentrates mainly on childhood vaccinations, tetanus toxoid vaccinations of women, prenatal care and certain essential curative activities.

Analyzing coverage

The goal of monitoring is to enable health personnel to identify the obstacles to attaining optimal coverage with the interventions. This involves carrying out a detailed analysis of constraining factors. In the literature, one can find one or more of these factors analyzed, but they are rarely analyzed systematically. Here, a conceptual framework was constructed which integrates these different factors, called "coverage determinants".

Five determinants were chosen. Each determinant is defined in terms of the same target population, i.e., the group that should be benefiting from the intervention concerned, during the period monitored.

These five determinants, which can be graphed, are :

— availability of resources : availability is measured by the percentage of time during which the resources required to implement the intervention were available ;

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— geographical accessibility of the services : accessibility is measured by the percentage of the target population living sufficiently close to have easy access of service delivery points ;

— utilization of the services by the target population : i.e., actual contact between the target population and the services. Utilization is measured by the percentage of the target population using the intervention at least once ;

— adequate coverage of the target population : adequate coverage reflects compliance in the use of the services. It is measured by the percentage of the target population receiving a complete intervention : for example, completely vaccinated, or having finished an antibiotic treatment with correct doses and duration of treatment ;

— effective coverage of the target population : effective coverage reflects the technical quality of the services. This is measured by the percentage of the target population receiving services of a standardized and verified quality (e.g., adhering to the cold-chain and to vaccination techniques, use of unexpired vaccines and drugs).

These five determinants make up a hierarchy in which each one influences the level of the subsequent factors ; in fact, each of the determinants is limited by the level of the preceding ones and constitutes the basis for the following ones. If a problem arises concerning one of these determinants, it affects all the subsequent steps, ultimately limiting effective coverage.

Each determinant is measured by an indicator. These indicators are expressed as percentages and their values can be graphed. A problem or "bottleneck" exists when the graph drops to the left between the value of two indicators.

For example, the May 1989 monitoring session carried out in Seredou in Guinea revealed a drop in the coverage graph between utilization and adequate coverage levels, i.e., a bottleneck at a level of adequate coverage. 58 % of the pregnant women received at least one prenatal consultation, but only 24 % received the necessary three. In Sinko, effective coverage achieved with tetanus toxoid vaccinations in pregnant women was measured at 11 %. This low effective coverage is mainly due to problems in accessibility, as revealed on the coverage graph as an important bottleneck between availability, measured at 88 %, and accessibility, measured at 38 % (Fig. 4 and 5).

Criteria for choosing indicators

Indicators are defined as specific and objectively verifiable measures of changes that result from an activity. Coverage indicators for monitoring were selected to maximize :

— validity : the indicators must reflect the concept of each coverage determinant so that they can be the basis for decisions. This implies they are sensitive enough to draw attention to important problems, without creating false alarms. For example, using the percentage of women having made at least 10 prenatal visits for adequate coverage would not be a valid indicator, since many visits are not necessary for correct prenatal care ;

— objectivity : this means that it has to be easy to agree on the value of the indicators : i.e., different individuals using the same source of information will come to the same conclusions. For example, using the percentage of the population which lives near the health centre for accessibility would not have been an objective indicator, as the notion of distance can vary from one person to another ;

— appropriateness : the indicator must take the particular context and the policies of the programme into account. For example, travel time would be more appropriate than distance as an indicator of accessibility in a region with many natural barriers (e.g., mountainous or marshy regions) ;

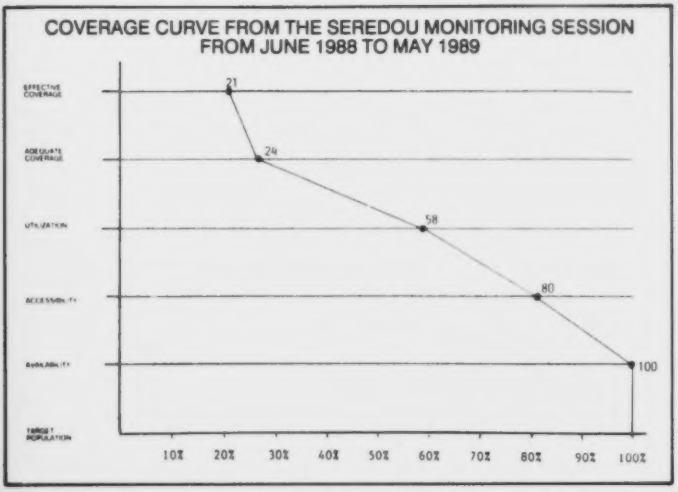


Figure 4 : Prenatal care

— measurability : the indicators must be able to be constructed from data easily available : e.g., routine service information. The percentage of children who received at least one DPT vaccination is easy to measure through an examination of vaccination registers and estimations of the size of the target population.

The indicators used in the two countries are shown in Tables 1 and 2.

Identification of problems and choice of corrective action

Identifying where problems are located and assessing their impact on effective coverage can be done by measuring the indicators for each of the five determinants.

After calculating indicator values and identifying bottlenecks in the graph, an analysis of causes is carried out.

Monitoring all five determinants assures that no essential element influencing coverage is left out. The coverage graph cannot identify the nature of the problems, but it can guide their identification and can demonstrate the bottlenecks' impact on higher levels of coverage. The health staff can investigate problems linked to the supply of services (availability, accessibility and effective coverage), while the community focuses more on the problems linked to demand (utilization and adequate coverage). Between them, they either possess or can find the information needed to identify the causes. In addition, these are the people who will be responsible for implementing corrective action ; for example, the supervisor would be involved in providing refresher courses, the Management Committee would be involved in action at community level and budgeting the costs of selected strategies.

Table 3 provides an example of this analysis for vaccination coverage.

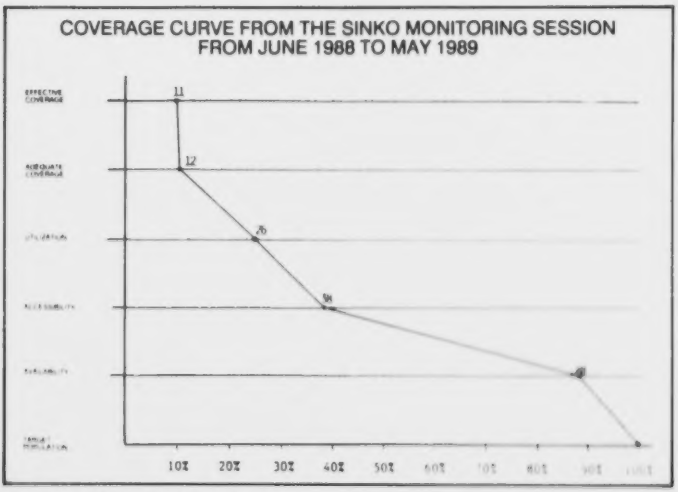


Figure 5 : Tetanus toxoid vaccinations

TABLE 1

INDICATORS USED IN MONITORING OF THE 2ND SEMESTER 1988 - BENIN

DETERMINANT INTERVENTIONS	CHILDHOOD VACCINATIONS	TETANUS TOXOID (Vaccinations in women of child-bearing age)	PRENATAL CARE	CURATIVE CARE
Target population	Children born between July and December 1987	Women having delivered between July and December 1988	Women having delivered between July and December 1988	Total population
Availability	% of time that there were no shortages of childhood vaccines	% of time that there were no shortages of TT vaccines	% of time that there were no shortages of iron/folic acid and of chloroquine	% of time that there were no shortages of any drug
Accessibility	% of target population living less than 5 km from a health centre or less than 2 km from outreach post	% of target population living less than 5 km from a health centre or 2 km from outreach post	% of target population living less than 5 km from a health centre	% of target population living less than 5 km from a health centre
Utilization	% of target population having received at least one vaccination	% of target population having received at least 1 TT	% of target population having made at least 1 prenatal visit	% of new patients registered (whether treated or not)
Adequate coverage	% of children completely vaccinated before their 1st birthday - observing intervals and minimum age	% of target population having received the second TT at least 2 weeks before delivery	% of target population having made at least 3 prenatal visits	% of new patients having paid the fee
Effective coverage	Adequate coverage × quality score (cold-chain and vaccination technique)	Adequate coverage × quality score (cold-chain and vaccination technique)	Adequate coverage × quality score for prenatal care	% of new patients treated according to flow charts

TABLE 2

INDICATORS FOR MONITORING IN GUINEA

DETERMINANT INTERVENTIONS	CHILDHOOD VACCINATIONS	TETANUS TOXOID VACCINATIONS	PRENATAL CARE	CURATIVE CARE
Target population	Children born between 1/6/88 and 30/11/88	Women having delivered between 1/6/89 and 30/11/89	Women having delivered between 1/6/89 and 30/11/89	Total population of sub-prefecture
Availability	% of time that there were no shortages of EPI vaccines	% of time that there were no shortages of tetanus toxoid (TT)	% of days without shortages of iron/folic acid	% of days without shortages of: – Cotrimoxazole – Prazinquentel – Chlorexidine – Acetylsalicylic – PP
Accessibility	% of target population living near a vaccination service delivery point with vaccines – < 5 km from fixed centre or – < 2 km from outreach site (with ≥ 3 sessions in 6 months)	% of target population living near a vaccination service delivery point with vaccines – < 5 km from fixed centre or – < 2 km from outreach site (with ≥ 3 sessions in 6 months)	% of target population living within a radius of 5 km of a health centre which carries out prenatal care and which has the resources	% of target population living within a radius of 5 km of a health centre with essential drugs available
Utilization	% of target population having received at least one vaccination dose before their 1st birthday	% of target population having received at least one dose of TT before delivery	% of target population having made at least one prenatal visit	Number of first visits in relation to total target population
Adequate coverage	Take the lower of: – % target population having received DTP3 at the right age and before 1st birthday – % target population receiving measles vaccine at correct age and before 1st birthday	% of target population having received 2 TT with the second before the 9th month and at least 1 month after the 1st dose	% of target population having made at least 3 prenatal visits, with one made during the 9th month	% of first visits registered that received treatment and paid correct fee
Effective coverage	% of target population adequately covered and with vaccines stored at correct temperature	% of target population adequately covered and with vaccines stored at correct temperature	% of target population adequately covered and effectively followed up: height taken, pregnancy history, and 3 months treatment with iron/folic acid	% of first visits adequately covered and treated according to flow charts

TABLE 3

CHILDHOOD VACCINATIONS

LEVEL OF THE PROBLEMS	TYPES OF PLAUSIBLE CAUSES	TYPES OF CORRECTIVE STRATEGIES
Effective coverage	— Poor monitoring of the cold-chain	Training Supervision
Adequate coverage	— Mother's lack of information — Negligence on the part of the mothers — Poor reception at the health centre — Missed opportunities — Side effects — Lack of follow-up	Information/Education concerning vaccinations Reorganization of the service Training Supervision Active channelling of the target population
Utilization	— Poor acceptability of the services — Communities poorly informed — Services poorly organized — Poor service quality	Evaluate staff attitudes Improve community participation Determine cultural taboos, assess the acceptability of vaccinations, their costs, etc.
Accessibility	— Geographical obstacles — Lack or high cost of transport — Insufficient outreach	Increase the decentralization through an outreach strategy
Availability	— Logistical support not working — Poor management of the stocks — Insufficient resources at national level — Poor distribution of the resources	Improve the management and supply system for vaccines, drugs, etc.

THE MONITORING IN GUINEA

TRAINING

Training in monitoring is one component of the PHC management training organized for all health staff. First, the national team participated in the development of the management training modules with a team from Benin and Nigeria. Next, the Prefectural Health Directors attended three-week seminars, in which four days were spent on monitoring and microplanning.

In the Forest and Upper Guinea regions, one rural and one urban EPI/PHC centre in each prefecture had been operational since early 1988. In June 1989, the first monitoring session was carried out in these two regions and budgets for the second semester of 1989 were developed.

IMPLEMENTATION

These monitoring sessions took place in four phases.

In order to better adapt the Beninese experience with monitoring to the Guinean programme context, the Guinean National Directors went on a 10-day preparatory mission to Benin. During this

mission, they met with those participating in the Benin monitoring : the national Benin team, the nurses and the community health committees. The Guinean team used this mission to study the different technical aspects used in monitoring and to select the best indicators for the Guinean programme.

The two regions in Guinea held three-day workshops for the support teams responsible for assisting the health centres. The workshops covered the techniques and practical organization of monitoring sessions, as well as the principles of budgeting. The members of the national coordination committee of the programme and some external consultants, including some Beninese health officials, acted as facilitators. The participants included the national programme supervisors, the Regional Health Inspectors, and certain Prefectural Health Directors or directors of hospitals who would be integrated into the regional support teams (selected because of the quality of their work). This training on monitoring techniques was the first effort of the regional training teams and demonstrated that they would be able to develop future training activities independently.

At the end of this workshop, teams of two to three people, including trainers and participants, were established. Their task was to assist the two health centres in each prefecture to carry out the monitoring, and establish their budget. These monitoring sessions were carried out by the health centre personnel and a member of the Management Committee ; during the first monitoring sessions they offered their help. Because the monitoring sessions were carried out parallel to routine activities of the health centres, they took two days to complete.

Monitoring addressed four activities : childhood vaccinations (EPI), tetanus toxoid vaccinations in women, prenatal care, and curative care.

The indicators were calculated based on data extracted from the forms, files and registers filled out daily by the health staff as part of their preventive and curative activities (see Appendix 6).

The target population consisted of those children having reached their first birthday, and of those women having delivered, during the six-month period monitored. The size of each target population was estimated from the 1983 census data (to be updated soon).

Data for indicators of availability come from vaccine stock forms for childhood and tetanus toxoid vaccinations, and from drug and revenue registers for prenatal and curative care. The drugs and revenues register is an important tool, containing information about daily drug consumption and daily revenue. The register is easy to use and facilitates rapid supervision.

Both demographic data and a health map showing the geographic distribution of the population in the catchment area are used to calculate accessibility indicators. Outreach activity reports are used to verify whether scheduled outreach sessions have actually been carried out.

The indicators for utilization and adequate coverage for MCH and vaccinations are derived from prenatal cards and the child health cards. For curative care, the treatment registers provide the data for utilization. This data is complemented by information from the receipt booklets, which furnish evidence of actual payments for the indicators of adequate coverage.

Effective coverage indicators for vaccinations are constructed from data recorded on the refrigerators' temperature monitoring forms. For curative care, supervision forms are analyzed to see if flow charts are followed. For prenatal care, data are compiled from prenatal cards.

In practice, the health staff, assisted by the regional support team and a member of the Management Committee, carried out the data compilation for monitoring coverage. This process took between a half and a full day, depending on the size of the population in the health centre's catchment area. Data was compiled only from the cards of those children having reached their first birthday and of those women having delivered during the six-month period covered by the monitoring. After having measured the various indicators, the personnel drew a coverage graph for each of the four interventions. They discussed the bottlenecks with the President of the Management Committee, and then together they looked for specific causes and decided on corrective strategies. For example, one centre proposed establishing a warehouse at the prefectural level to improve vaccine distribution. Another chose either to implement outreach activities or to create a new vaccination site to improve accessibility. A third health centre decided to carry out a rapid assessment of the population living close to the health centre to examine why they are not using the health centre. Some other health centres proposed to open a delivery room in order to offer more complete services to pregnant women. One centre chose to improve prenatal coverage by organizing prenatal care at home after the eighth month of pregnancy. Finally, certain centres decided to implement active channelling for women and children dropping out of preventive activities.

This step of graphing the coverage curves and analyzing them took another half day. The strategies to be implemented during the following semester were then microplanned and incorporated in the establishment of the budget.

Once the local monitoring was completed and budgets established in all of the EPI/PHC health centres of the region, the results were presented and discussed in two regional meetings. In one region of Guinea, for example, 16 health centre heads, accompanied by the Management Committee Treasurers, presented their work during the meeting. This meeting had several objectives :

— to impress the importance of monitoring on the health staff and their crucial role in that process ;

— to create a certain competition between health centres by comparing coverages achieved by different centres ;

— to identify common problems which require assistance from the regional or national level ;

— to exchange experiences concerning the implementation of corrective actions.

THE MONITORING IN BENIN

TRAINING

In 1987, the 24 District Medical Officers, the provincial medical officers, and the provincial PHC team were trained in the Pahou Project in PHC management which included monitoring. Next, during a series of three subsequent training sessions in the provinces, these District Medical Officers became training facilitators for the training of the nurses in charge of the 48 commune health centres. Playing the role of facilitators provided the District Medical Officers with the opportunity to improve their theoretical knowledge under the guidance of national and provincial teams.

After this training, the provincial health staff, the district medical officers and certain national directors of the Ministry of Health held a preparatory workshop on monitoring. During this workshop, they selected the activities to be monitored, chose the indicators, identified the information sources, and planned the monitoring process.

IMPLEMENTATION

Monitoring in Benin was carried out in the same manner as in Guinea, and Benin completed its third series of monitoring sessions in June 1989. From the first sessions in September 1988, the "support physicians", District Medical Officers selected for their competence and their dynamism, helped the health centres in the implementation of the monitoring sessions. The second series of monitoring sessions, carried out in February 1989, was combined with the training of the health staff from the centres which had been selected for programme extension. During this second monitoring, the need for active channelling of the target population became evident ; notwithstanding the implementation of outreach strategies, the vaccination coverage remained low. Given the limited size of the health team, community participation in this channelling at village level became essential. The operational problems identified during this second monitoring led to corrective actions and the effectiveness of these actions was assessed during the third monitoring in June 1989.

In Oumbega, the February 1989 monitoring had revealed low utilization of childhood vaccinations (32 %), even though the entire target population had access. A second problem was identified at a level of adequate coverage. Following these observations, several corrective actions were implemented : improvement in the recording of activities ; mobilization of the population by the members of the Management Committee ; active identification of newborns from prenatal cards ; and tracing of children who had not continued their vaccination series based on the child health cards. The June 1989 monitoring showed a reduction of these bottlenecks, especially at the level of utilization : the percentage of completely vaccinated children rose from 8 % to 60 %. The new priority bottleneck is now located at the level of adequate coverage and strengthening active channelling of target children was identified as a priority for the following semester.

The performance of some other health centres did not improve between the monitoring sessions. Figures 6 and 7 present the coverage graphs of six health centres in the Zou province. In February 1989 they had quite similar coverage levels ; yet results from the June 1989 monitoring (covering the first semester of 1989) indicated different evolutions, depending on whether the health centres had actually implemented the corrective actions proposed during the first monitoring : effective coverage in Oumbega went from 8 % to 60 %, whereas in Oke Owo, it remained the same (24 % to 25 %).

The third monitoring in June 1989 combined monitoring and supervision. In addition to cost savings, it was possible to link supervision observations to monitoring data. Supervision complemented the quantified monitoring data and helped identify bottlenecks. This experience demonstrated the relevance of the triad monitoring/supervision/community participation.

MICROPLANNING CORRECTIVE ACTIONS

After the monitoring and choice of different strategies to address the bottlenecks, these strategies were microplanned. Microplanning implies a planning process carried out by and for peripheral units. It consists of selecting activities to solve operational problems in the existing structure. Microplanning defines the target population for each intervention and specifies specific short-term objectives in function of the selected actions. This microplanning is an integral part of the dynamic process in which corrective actions, objectives, and resources are continuously adjusted in function of the monitoring results. Microplanning involves a detailed description of the tasks, the resources required, and how the implementation of activities will be organized. Microplanning addresses the questions :

— which tasks are to be carried out ?

COVERAGE CURVES FROM EPI/PHC HEALTH CENTRES IN THE ZOU PROVINCE FOR THE 2ND SEMESTER MONITORING SESSION OF 1988

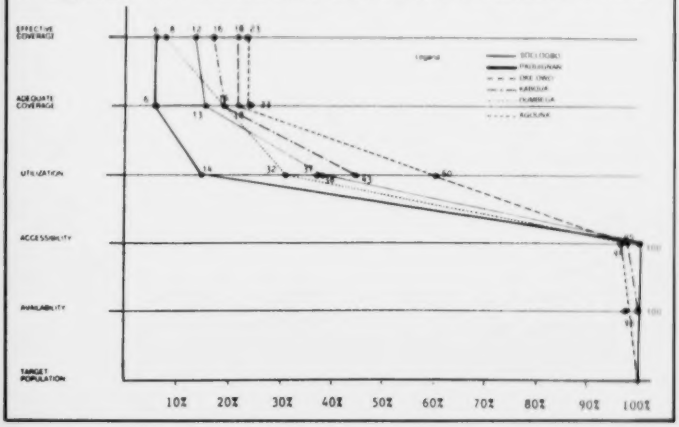


Figure 6 : Childhood vaccinations

— where and when will the activities take place ?

— who will be the people responsible for carrying them out and who will be the target groups ?

— what resources are required ?

For example, "The midwife and the village health workers will, as of May 1, carry out maternal and child health sessions in each village on a monthly basis on the market days. These sessions will consist

of vaccinations, growth monitoring, prenatal care and malaria prophylaxis. To implement this, they will need vaccines, vaccination material, MCH and vaccination cards, a scale, chloroquine, a blood pressure machine and a project vehicle."

This microplanning implies that the higher levels ensure their support. This support must be planned in function of the selected strategies and should include :

— training and supervision necessary for the acquisition of required skills ;

— logistical support, such as transport and a supply system to provide the required resources ;

— planning of monitoring and evaluation activities (coverage indicators for coverage, data sources, collection processes).

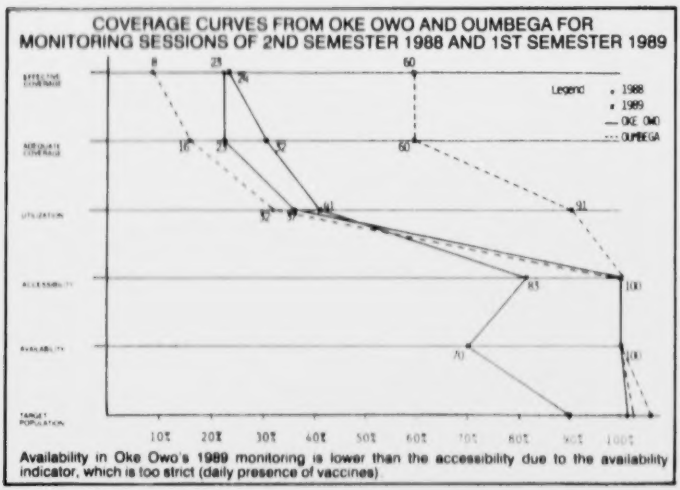


Figure 7 : Childhood vaccinations

MINIMIZING THE COSTS OF PRIMARY HEALTH CARE

The regular supply of essential drugs to the health centres will help reduce functioning costs, ensure quality of treatments, restore the population's confidence in the health system, and respond to its demand for curative care.

In the context of PHC reorganization, a limited number of drugs were chosen, based on their cost-effectiveness and their response to priority needs as well as perceived needs. After an international tendering procedure, the least expensive supplier was chosen, a supply system and drug management established, and training carried out to assure their rational use.

THE CHOICE OF ESSENTIAL DRUGS

The essential drugs policy promoted by WHO and UNICEF proposes a list of essential drugs under their generic names or international common denomination (ICD). This list does not include brand names legally protected by the producer. In fact, when developing new drugs, pharmaceutical companies are given the sole rights to produce and sell their drugs for a period of 10 years (considered the time needed to make the drug profitable). After this period, the drug can be produced by any laboratory at a lower cost, since expenditures for research and testing have already been amortized.

Essential drugs under their generic name facilitate prescribing by reducing the number of ways the same drug can be presented. Essential drugs can be more easily recognized on an international level, as the names will no longer depend on the commercial names that vary from country to country. With an essential drugs policy, standard treatment practices for the most common diseases can be established, and drugs considered to be dangerous or ineffective can be suppressed.

In summary, essential drugs are less expensive because they are purchased under an unprotected trade name through non-profit organizations using an international tender. The costs of packaging can be reduced by purchasing in large quantities and by simplifying presentation. Thus, using generic-name essential drugs can significantly improve the cost-effectiveness ratio of treatments.

The table 4 presented below shows comparisons of drug costs under their commercial name (selling price in Benin : VIDAL 1985 + 40 %) and under their generic name (from UNIPAC).

In Guinea, the team responsible for reprogramming the EPI/PHC essential drug programme consisted of national directors and consultants. They selected a series of priority diseases for which essential drugs were chosen. This first list was composed of diseases related to maternal and child health. For each disease, a standardized treatment was established, based on the best cost-effectiveness ratios. In order to calculate the required quantities of each drug, it was necessary to determine both the

disease incidence/prevalence and the exact number of patients expected. The Directorate of Prevention in the Ministry of Health provided estimates of prevalence of the different diseases. The total annual quantities of drugs required for 2,500 inhabitants were calculated, based on these morbidity data, on the standardized treatments selected by the National Health Directors (see Table 5), and on an estimation of coverage of 30 % (once the health centres were being regularly supplied).

TABLE 4

COMPARISON OF DRUG COSTS UNDER THEIR COMMERCIAL NAME AND UNDER THEIR GENERIC NAME

Commercial Name	Price / Treatment	Generic Name	Price / Treatment
Totapen	5,200 FCFA	Ampicilin	270 FCFA
Tifomycine	4,680 FCFA	Chloramphenicol	500 FCFA
Nivaquine	420 FCFA	Chloroquine	46 FCFA
Quinimax	4,230 FCFA	Quinine	1,250 FCFA
Speciafoldine	780 FCFA	Folic acid	12 FCFA
Doliprane	625 FCFA	Paracetamol	30 FCFA
Aspegic	500 FCFA	Acetylsalicylic acid	30 FCFA

In Benin in 1987, the priority diseases to be addressed were identified. These determinations were made by physicians from the national directorate of EPI/PHC, from the Swiss bilateral aid project, and from the French Cooperation. The criteria used included : the importance of the health problem and the feasibility of interventions to combat it.

The importance of the health problem was measured by its frequency according to epidemiological data, its severity, the community's perception of the problem, and the possible repercussions on the population's socio-economic activities.

Feasibility was judged on the basis of the problem's vulnerability to an intervention, the financial feasibility of implementing the intervention, and the degree to which the community would be likely to accept the intervention.

The diseases were then rated on these criteria, using a scale of one to three (one = low, two = medium, three = high). Table 6 illustrates this scoring system, with the highest total scores indicating the highest priority diseases.

The same working group then established an essential drug list of 45 drugs corresponding to the treatment of the priority diseases (see Table 12).

TABLE 5

DRUG NEEDS FOR A POPULATION OF 2,500 FOR 12 MONTHS IN GUINEA

Illness	Incidence for 2,500 people	Drugs for one treatment	Total quantity required 100 % average	30 % coverage
Mild malaria	5,000	Chloroquine 15 tbs	75,000 tb	25,000 tb
Malaria prophylaxis	125	Chloroquine 60 tbs	7,500 tb	2,500 tb
Severe malaria	50	Quinine 10 vials	500 vial	166.6 vial
Pneumonia in adults	15	Penicillin 15 vials	225 vial	75 vial
Pneumonia in children	100	Penicillin 5 vials	500 vial	166.6 vial
Bronchitis in adults	15	Sulfa + trimethoprim 28 tb	420 tb	140 tb
Bronchitis in children	100	Sulfa + trimethoprim 14 tb	1,400 tb	466.6 tb
Intestinal parasites	1,000	Mebendazole 6 tb	6,000 tb	2,000 tb
Tenia	100	Niclosamide 4 tb	400 tb	133.3 tb
Schistosomiasis	75	Praziquantel 2 tb	150 tb	50 tb
Amibea	100	Metronidazole 40 tb	4,000 tb	1,333.3 tb
Leprosy	12	Dapsone 100 tb	1,200 tb	400 tb
Skin fungal infections	250	Benzoic acid + salicylic acid	5 kg	1.6 kg
Scabies	333	Benzyl benzoate	6 kg	2 kg
Urinary infections and Gonorrhea	115	Sulfa + trimethoprim 20 tb	2,300 tb	766.6 tb
Otitis media (children)	75	Sulfa + trimethoprim 10 tb	750 tb	250 tb
Dermatitis, External otitis	600	Benzoic acid + salicylic acid	10 kg	3 kg
Conjunctivitis, Trachoma	175	Tetracycline eye ointment 5 g	175 tubes	58.3 tubes
Pain	1,000	Acetylsalicylic acid 10	10,000 tb	3,333 tb
Anemia in pregnancy	50	Iron + Folic acid 60 tb	3,000 tb	1,000 tb
Anemia in children	50	Iron sulphate 30 tb	1,500 tb	500 tb
Moderate malnutrition	100	Thiamine 10 tb	1,000 tb	333 tb
Severe malnutrition	5	Thiamine 60 tb	300 tb	100 tb
Diarrhea, dehydration	300	Oral rehydration salts (2 packets)	600 packets	200 packets
Severe dehydration	30	Na Lactate 2 × 500 ml	60 bottles	20 bottles
Normal delivery	125	Tetracycline eye ointment	20 tubes	6.6 tubes
		Soap 1	125	41.6
		Razor blade 1	125	41.6
		Chlorhexidine	3 liters	1 liter
Complicated delivery	12	Ergometrin 1 vial	12 vials	3 vials
		Diazepam 1 vial	12 vials	3 vials
		Penicillin 1 vial	12 vials	3 vials
Wounds	250	Chlorhexidine	3 liters	1 liter
		Bandages		
Wounds requiring stitches	25	Idem + thread, staples		
		Lidocain 1 vial	25 vials	8.3 vials

Source: WHO Mission report - July 1986.

TABLE 6

PRIORITY DISEASES IN BENIN

CRITERIA / DISEASES	IMPORTANCE OF PROBLEM				FEASABILITY OF INTERVENTION			TOTAL
	FREQ.	SEVERITY	PERCEP.	REPERC.	VULN.	FIN.FEAS.	ACCEPT.	
Malaria	3	3	3	3	3	1	3	19
Hypertension	1	2	2	1	2	2	1	11
Diarrhea	2	2	3	3	3	3	2	18
Diabetes	1	2	1	1	1	1	1	8
Lower respiratory infection	2	3	3	2	3	3	2	18
Hernia	1	2	2	1	2	2	1	11
Measles	2	2	3	2	3	3	3	18*
Angor	1	2	1	1	2	2	1	10
Pertussis	2	2	2	2	3	3	3	17*
Asthma	1	1	2	2	2	2	1	11
Poliomyelitis	2	2	2	2	3	3	3	17*
AIDS	1	3	1	1	1	1	1	9
Malnutrition	2	2	2	2	2	2	2	14
Flu	3	1	2	1	3	3	1	14
Hemorrhoids	2	1	2	1	2	2	2	12
Pulmonary tuberculosis	3	2	3	3	3	3	3	20
Gastric ulcer	2	2	1	1	2	2	2	12
Leprosy	1	2	3	2	1	1	1	11
Trypanosomiasis	2	3	2	1	2	1	1	12
Intestinal parasites	3	1	1	1	2	2	3	13
Onchocerchiasis	1	1	1	3	3	3	2	14
Anemia	3	2	2	2	3	3	2	17
Hepatitis	1	1	2	1	2	2	2	11
Scabies	3	1	1	1	3	3	3	15
Liver cancer	1	3	1	1	1	1	1	9
Conjunctivitis	3	1	2	1	3	3	3	16
Epilepsy	1	2	2	1	1	2	2	11
Infected wound	1	1	2	1	3	3	3	14
Diphteria	3	2	1	1	3	3	3	16*
Tetanus	1	3	3	2	3	3	3	18*

* For these diseases, the intervention would be vaccinations.

The quantities of each drug to be ordered were calculated from epidemiological data, and from data on drug consumption in the Pahou Primary Health Care Project. Service utilization in the Pahou Project was about 0.6 first visits per capita per year. This rate corresponds to about one disease episode treated per person per year, since patients often present more than one disease). The quantities for the national EPI/PHC programme were then adapted to its particular strategies : for example, the quantity of chloroquine calculated from the Pahou data was increased in the national programme where it was to be used also for malaria prophylaxis in pregnant women (the Pahou Project used pyrimethamine for prophylaxis).

FLOW CHARTS

Flow charts are decision trees used by the health worker in deciding which therapy to apply or whether to refer a patient. Decision trees are standardized guidelines which assure quality care and avoid inappropriate and potentially dangerous treatments.

Flow charts guide the health staff by helping them to rationalize their actions so that they correspond to the health problem to be solved.

For the health system as a whole, flow charts help reduce costs by limiting over-prescription and facilitate the management of drugs and equipment. The standardization of treatments helps quantify resource needs and thus makes community and supervisory control of drug consumption easier.

Flow charts combined with an essential drug policy, as applied in Benin and Guinea, assure a better quality of care. They provide nurses with concrete guidelines and for the health system, they ensure optimal use of available resources.

In September 1987 in Benin, two experts helped train a central team of facilitators and oversaw the development of the first flow charts. This central team then aided the nurses in each province to develop their own flow charts. Three sources of data were used as the basis

— dominant complaints were identified from presenting symptoms as documented in the treatment registers ;

— the principal pathologies/diseases linked to these dominant complaints were identified through local epidemiological data ;

— common clinical signs of these diseases.

After having listed the dominant complaints, the signs and symptoms of the priority diseases were carefully noted. Flow charts were developed from these complaints. These flow charts had a decision branch for each complaint in which the following were specified : the important signs, the corresponding diagnosis, and the standardized treatment/action (including the specific types and quantities of drugs and treatment duration).

For example, treatment registers showed fever ("hot body") to be the most frequent complaint among children. Local epidemiology indicates that three priority diseases could be associated with this sign : malaria, pneumonia, and meningitis. The flow chart for fever therefore starts with those signs which would confirm or exclude each of these three pathologies. It then goes on to provide the actions to be taken in each case. For example, a bulging fontanelle in a child less than one year old, or neck stiffness in an older child, would indicate a diagnosis of meningitis.

This rationalization of curative care resulted in average drug costs per consultation (including information system costs) of US$ 0.44 in Benin and US$ 0.58 in Guinea. These amounts represent the health system's purchasing and processing costs.

Experience has shown the importance of having these flow charts developed by the nurses and physicians themselves. For example, in the Pahou PHC Project, the flow charts used had been based on Nigerian models. The village health workers (VHW), non-medical staff, used them well, but the nurses showed resistance to using the flow charts which they perceived as instruments to control and constrain their freedom of prescription. Thus, in the EPI/PHC programmes in Benin and Guinea, the nurses developed these instruments and used them voluntarily. To balance the potential risks involved in having lesser qualified personnel develop the flow charts, specialists in pediatrics and gynecology also participated to guarantee quality of diagnosis and treatment procedures.

TRANSPARENT MANAGEMENT OF DRUGS AND BUDGETS

The presence of drugs and money in the health centres necessitates rigorous management and control, exercised by the users, the community, and the health system supervisors. Such careful management has been applied to both the daily health care activities and the administrative task in the health centre. This rigor can be seen in the following example.

Today, on August 30, 1989, Blanche Codjo, a lovely 30-year-old woman who has lived in the village of Fonli in Sikecondji commune since her marriage, brings her son, Cassi, to the health centre. Cassi, 10 months old, has been coughing for four days, ever since his mother took him with her to the market. Yesterday, he had fever and his cough persisted. His mother gave him a Nivaquine tablet and an aspirin that she had bought in the market. Yet, this morning, Cassi is very tired and has trouble breathing. The previous patient is now leaving the consultation room, and without waiting, Blanche finds herself face to face with the nurse. She explains to him the market, the cough, the fever, the stomach ache, and finally, Cassi's difficulty breathing, which is really worrying her.

For Kouassi, head nurse for the past five years in this health centre far from the capital, Blanche and Cassi are his fifth consultation on this relatively calm day. He asks Blanche for Cassi's health booklet and takes the child's temperature. Cassi has a temperature of 39 degrees C : the child is out of breath and continuously coughing.

In order to choose the proper treatment and to ensure that he makes no mistakes, Kouassi takes his set of flow charts which he helped develop during the last training session. He chooses the child's dominant complaint as the entry point : dyspnea (Figure 8). Using this flow chart, he chooses the branches which correspond to the symptoms he has found : fever plus cough. Following this branch, Kouassi arrives at the treatment indicated for this case of fever plus cough with no other associated signs : procaine penicillin, chloroquine, acetylsalicylic acid (aspirin), cough suppressant. This treatment will initially be given for three days. If Cassi has improved by then (A in the flow chart), the treatment will be continued for another four days. If there is no improvement, Kouassi will refer the child to the district hospital. Kouassi then carefully records the information in the treatment register (Figure 9). Consulting the fee schedule, Kouassi determines the price, applying fee n° 4 : "child under five with cough and fever," which costs 500 FCFA (see Appendix 1). He then records the date, the dominant complaint, the fee no., the treatment, the drugs delivered (and their dosage) and the money received all in the child's health booklet (Figure 10).

Kouassi looks through Cassi's health booklet to check his vaccination status and finds that at 10 months of age, Cassi has not yet received his DPT2, Polio2, nor his measles vaccination (Figure 11). Kouassi finds Cassi's child health card and verifies that Cassi has really only received BCG, DPT1 and Polio1 (Figure 12).

The nurse weighs the child, writes down the weight in Cassi's health booklet, and marks the weight on the growth chart found in the back of the booklet : 9.6 kilograms. Cassi's weight is above the norm for his age. Kouassi delivers DPT2, Polio2 and measles vaccines, using a syringe and needle he had sterilized the night before. He records the date on the health booklet and the child health card, and then files the child health card under "September" in the Fonli child health card box, telling Blanche that the health team will be vaccinating in Fonli on September 28th and Cassi should come for his DPT3 and Polio 3.

Figure 8 : Dyspnea in children

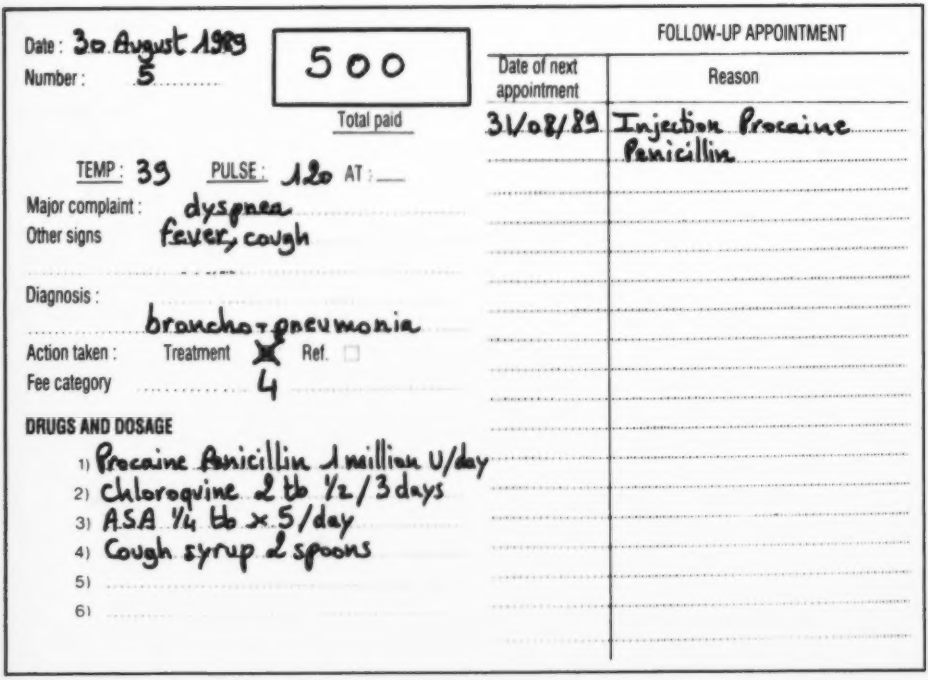
Once the child has been vaccinated, his mother takes his health booklet and goes to the health aide who is in the treatment room, bandaging another patient. The health aide reads the treatment and price written in Cassi's health booklet by the nurse. He takes some chloroquine tablets and some acetylsalicylic acid from his

PROVINCE _____ DISTRICT HEALTH CENTRE _____

DISTRICT _____ COMMUNE HEALTH CENTRE SIKECONDJI

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DATE OF PREVIOUS VISIT	N°	LAST AND FIRST NAME NEW PATIENT	RESIDENCE	MALE				FEMALE				HEALTH PROBLEM		TREATMENT OR ACTION	FEEE PAID
				0-11 months	1-4 yrs	5-14 years	15 yrs and +	0-11 months	1-4 yrs	5-14 years	15 yrs and +	Code N°	DESCRIPTION		
REPORT															
	4	Zinsou Pauline	Sikecondji								1		fever anemia	chloroquine 6 tb/day ASA 6 tb/day Iron/folic acid 3a tb	150+250 400F
	5	Codjo Cassi	Fonli	1									diffiwlty breathing fever cough	Procaine Penicillin 1 MU chloroquine ASA Cough suppressant	500F
													48		

Figure 9 : Curative care register



Date : 30 August 1989
Number : 5

500
Total paid

TEMP : 39 PULSE : 120 AT : ___
Major complaint : dyspnea
Other signs : fever, cough

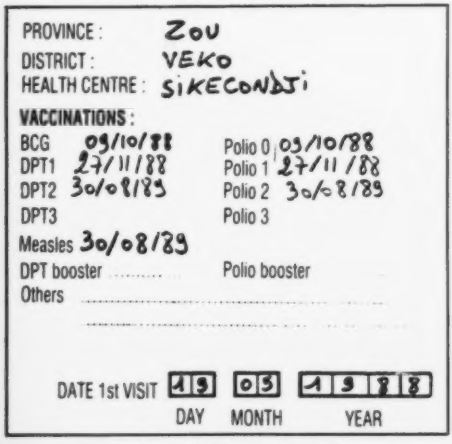
Diagnosis : broncho-pneumonia
Action taken : Treatment X Ref. ☐
Fee category : 4

DRUGS AND DOSAGE
1) Procaine Penicillin 1 million U/day
2) Chloroquine 2 tb ½/3 days
3) ASA ¼ tb x 5/day
4) Cough syrup 2 spoons
5)
6)

FOLLOW-UP APPOINTMENT

Date of next appointment	Reason
31/08/89	Injection Procaine Penicillin

Figure 10 : Taken from the Health booklet



PROVINCE : Zou
DISTRICT : VEKO
HEALTH CENTRE : SIKECONDJI

VACCINATIONS :

BCG	03/10/88	Polio 0	03/10/88
DPT1	27/11/88	Polio 1	27/11/88
DPT2	30/08/89	Polio 2	30/08/89
DPT3		Polio 3	
Measles	30/08/89		
DPT booster		Polio booster	
Others			

DATE 1st VISIT 19 (DAY) 05 (MONTH) 1988 (YEAR)

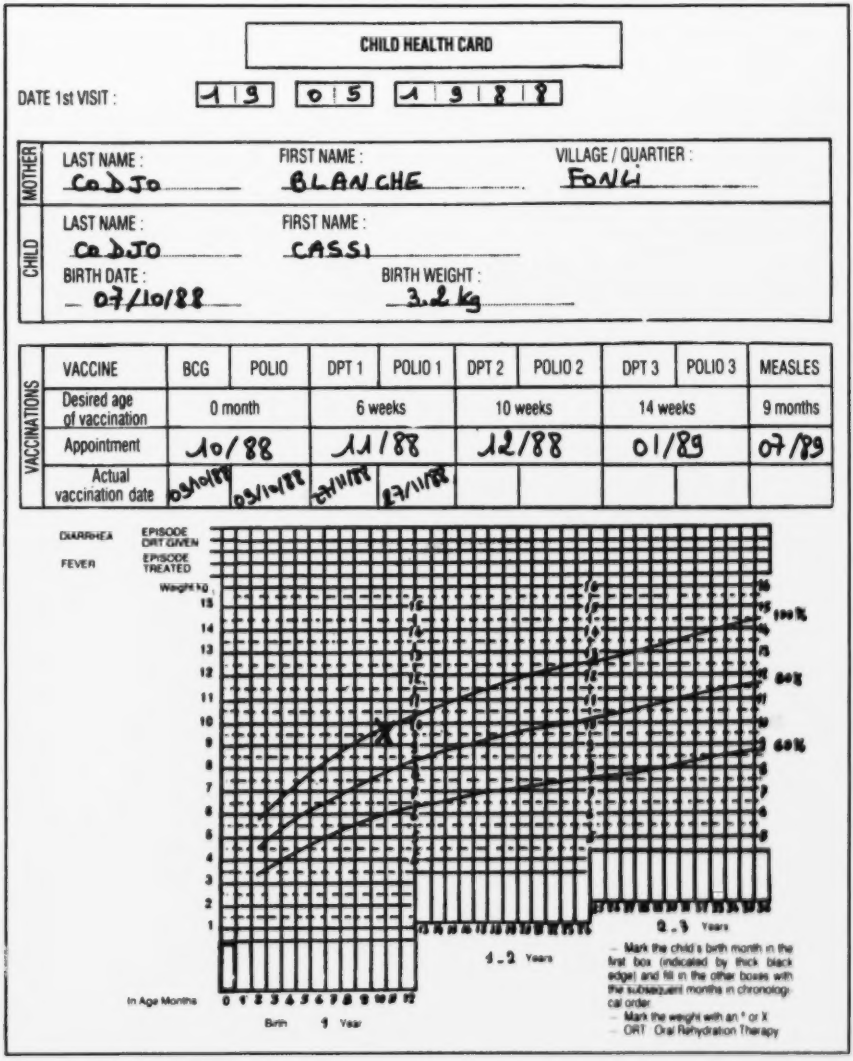
Fig. 11 - Taken from the Health booklet

supply box and gives them to Blanche in a little plastic bag. He gives Cassi two spoons of cough syrup and fills out a receipt :

Health Centre : Sikecondji
Date : 30 / 8 / 89
Name : CODJO, Cassi
Fee caterory : 4
Amount paid : 500 FCFA

The health aide receives 500 FCFA from Cassi's mother and staples the receipt into the health booklet on the page where the nurse had written the diagnosis and treatment. Then, he gives Cassi the penicillin injection in the injection room. He reminds Blanche that she needs to return the next day for the next injection, but says that the fee paid covers the whole treatment. When leaving, Blanche passes in front of a notice board where the fee schedule is posted.

It should be noted that Cassi, being under three years of age, has a child health booklet. Children over three and adults have only a treatment booklet which does not mention vaccination status. The treatment booklet sells for 50 FCFA. The child health booklet'scover serves to identify the child and the vaccinations he has been given. The first pages contain the official fee schedule for each



CHILD HEALTH CARD

DATE 1st VISIT : 19 | 05 | 1988

MOTHER — LAST NAME : CODJO — FIRST NAME : BLANCHE — VILLAGE / QUARTIER : FONLI

CHILD — LAST NAME : CODJO — FIRST NAME : CASSI — BIRTH DATE : 07/10/88 — BIRTH WEIGHT : 3.2 kg

VACCINATIONS

VACCINE	BCG	POLIO	DPT 1	POLIO 1	DPT 2	POLIO 2	DPT 3	POLIO 3	MEASLES
Desired age of vaccination	0 month		6 weeks		10 weeks		14 weeks		9 months
Appointment	10/88		11/88		12/88		01/89		07/89
Actual vaccination date	05/10/88	05/10/88	24/11/88	23/11/88					

DIARRHEA EPISODE ORT GIVEN
FEVER EPISODE TREATED
Weight kg
In Age Months
Birth 1 Year
1 - 2 Years
2 - 5 Years
100%
80%
60%
- Mark the child's birth month in the first box (indicated by thick black edge) and fill in the other boxes with the subsequent months in chronological order
- Mark the weight with an * or X
- ORT Oral Rehydration Therapy

Figure 12 : Child health card

category of payment, while the remaining pages are reserved for consultations, one page for each consultation.

Florence Atchaka, a woman of 23, arrives at the health centre's maternity ward for a prenatal visit. She is four months' pregnant, and this is her first visit. The midwife takes a history, does a physical exam, and then fills out :

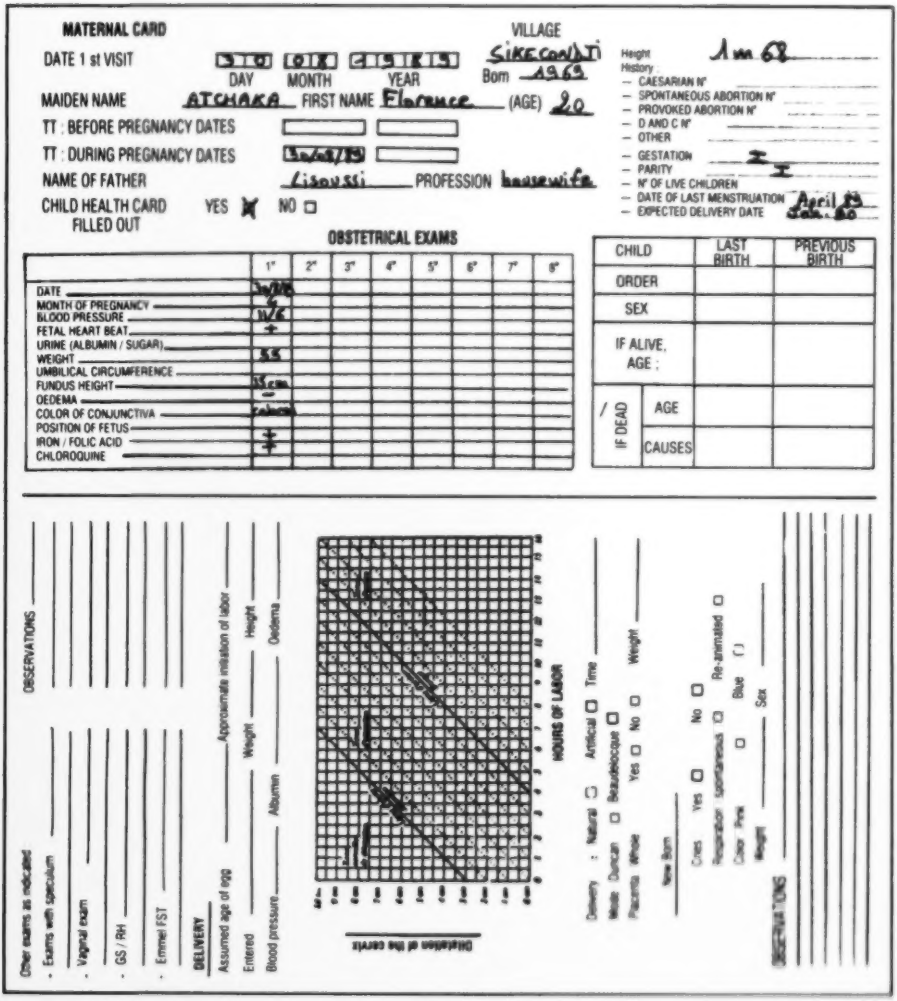


Figure 13 : Maternal card

— a maternity card (Figure 13) with Florence's name, her village (Sikecondji), and the expected date of delivery (January 1990). As Florence has not yet been vaccinated with tetanus toxoid, no vaccination date is marked ;

— a child health card for the expected newborn, with Florence's (his mother) name ;

— a health booklet which will become the child's booklet, but now serves as a maternity booklet during the pregnancy. This booklet thus contains information pertaining to the pregnancy and the first three years of the child's development.

Florence receives the first tetanus toxoid injection, which is recorded in the maternity care and the health booklet. The midwife asks Florence about previous pregnancy history and records the absence of edema and Florence's uterine height of 15 cm. on the maternity card (Figure 14).

Florence's maternity card and the child health card are filed in the Sikecondji file box in the "September" compartment. The midwife tells her to return for the second tetanus toxoid vaccination and for the second month's prophylaxis for malaria and anemia. Once Florence has received her two tetanus toxoid injections, the child health card will be filed in the compartment corresponding to the expected month of Florence's delivery.

Florence's dose of iron/folic acid (1 tablet a day), chloroquine (3 tablets per week), and the fee for these prophylaxes are recorded in the health booklet.

With her health booklet, Florence then goes to the health aide who gives her 30 iron/folic acid tablets and 12 chloroquine tablets.

The health aide records the drugs given and the fee of 550 FCFA (500 FCFA for the consultation and 50 FCFA for the health booklet) on a receipt. He tells Florence that this fee covers all other prenatal visits and prophylactic drugs and that she will have to present this receipt when she returns for the next prenatal visit.

At the end of the day, the nurse and the health aide add up the drugs used during the day from the carbons of the receipts. The quantity of each drug is documented in the Drug and Receipts Book for that day (Appendix 2). They count the money received and record it in the account book and in the Drug and Receipts Book. The money is then stored in a small strong-box which the nurse keeps with him. It takes them half an hour to complete these tasks.

The next day is the day for the monthly inventory. The nurse adds up the daily quantities used for each drug and subtracts these amounts from the total of drugs received throughout the month and the stock at the beginning of the month. The quantity that should still be in stock according to his calculations is compared to what he actually has in stock. The Management Committee President joins him. The President holds the key to one of the two

CHILD

Last and first names :

Birth date : sex

Place of birth :

FAMILY HISTORY

Father : BW G.S. Rh

Emmel test

Mother BW GS Rh

Emmel test

PRENATAL CONSULTATIONS

MOTHER

Last and first names : ATCHAKA Florence

Age : 20 years Ethnic group :

Profession : housewife

Address : Sikecondji

MOTHER'S HISTORY :

Height 1.68

Caesarian N° Gestation I

Spontaneous abortion N° Parity I

Number of living children

Curetage N°

Others

PRESENT PREGNANCY

Last menstruation April 1989

Month of pregnancy 4 months

Expected delivery date Jan. 1990

FATHER

Last and first names : LISOUSSI Placide

Age : 30 years Ethnic group :

Profession : farmer

Address :

Tetanus toxoid

TT1 30/08/90

TT2

TT3

TT4

TT5

PRENATAL CONSULTATIONS

	1st	2 nd	3 rd	4th	5 th	6 th	7 th	8 th
Date	30/08/90							
Month of pregnancy	4th							
Blood pressure	11/6							
Fetal heart beat	+							
Urine (Albumin / sugar)	A: S:	A: S:	A: S:	A: S:	A: S:	A: S:	A: S:	A: S:
Weigth	55							
Umbilical circumference								
Fundus height	15							
Œdema	—							
Jaundice	—							
Bleeding	—							
Conjunctiva	colored							
Presentation	ceph.							
Iron / Folic acid	yes							
Chloroquirne	yes							

Other exams as indicated

— Speculum exam

— T.V. 30/08 Cervix closed

OBSERVATIONS :

51

Figure 14 : Taken from the health booklet.

locks to the pharmacy, while the nurse holds the key to the other. Jointly, they open the pharmacy door : the nurse gets out a box of 1,000 chloroquine tablets, a box of 500 acetylsalicylic acid tablets, and all that he needs for his daily stock. The nurse records these quantities on the stock form (Figure 15) and writes them as

STOCK FORM — DISTRICT : VEKO — HEALTH CENTRE : SIKECONDJI

DRUG NAME : CHLOROQUINE

PRESENTATION : TABLETS — DOSAGE : 100 mg

PACKAGING : Box of 1000 tablets — CRITICAL STOCK LEVEL : 1,000

DATE	RECEIVED	ISSUED	STOCK	FROM / TO	EXPIRY DATE	OBSERVATIONS	SIGNATURE
03/03/89	30,000	—	10,000	EPI/PHC	03/92		
05/03/89		1,000	9,000				
08/03/89		1,000	8,000				
03/08/89		1,000	7,000			20 tablets ruined	
13/08/89		1,000	6,000				
31/08/89		1,000	5,000				

Fig 15 : Stock form

quantities received in the Drug and Receipts Book. They close the pharmacy and go to the bank in the district capital where they deposit a part of the monthly revenue into the bank, 50,000 FCFA, and get a receipt for the deposit.

On returning, the nurse buys petrol for the refrigerator (2,000 FCFA) and asks for a receipt. When he arrives at the health centre, he enters this into the account book (Figure 16).

Finally, the nurse numbers the receipt from the bank and the receipt from the petrol station, and puts them into an envelope. This monthly task of inventory and deposit takes him one afternoon.

In Benin and Guinea, the management tools are standardized for the entire country. This way, it is easier to control the system. All health staff and their supervisors can be trained in the context of the EPI/PHC programme.

In Guinea, these management tools and their instructions were developed in a close collaboration between the members of EPI/PHC programme and the State Secretariat for Decentralization. The State Secretariat for Decentralization organized the community to play an active role in checking revenue, expenditure, and drug use. By official decree, the communities in Guinea are the owners of the drugs and finances in their community. Local revenue is under their direct control. The State Secretariat for Decentralization supervises and supports the communities, and in case of dispute, they can take disciplinary measures through the Ministry of the Interior.

Zou Province — Veko District — Sikecondji Health Centre

Date	Heading	Revenue	Expenses	N°	Balance	Observ.
					8,000	
30/8/89	Services	50,250			58,250	
30/8/89	Bank		50 000	17	8,250	Deposit
31/8/89	Petrol		2,000	18	6,250	

Figure 16 : Account book

ASSURING THE SUSTAINABILITY OF PRIMARY HEALTH CARE

RECOVERING LOCAL OPERATING COSTS

WHY LOCAL FINANCING ?

The 1986 Benin health budget came to US$ 2.50 per capita per year. 80 % of this budget went towards salaries, leaving 20 % (US$ 0.50 per capita) for functioning costs. However, in reality, a whole series of problems kept the periphery from benefiting from these 50 cents. At this moment, the Government is experiencing major difficulties paying salaries and strikes are threatening to paralyze the health system. Classically, external assistance finances most investment and equipment replacement costs, but not local operating costs (except for in very specific and limited cases). Given this context, it has been proposed in Benin to have the communities finance local operating costs. Health workers' salaries will continue to be the financial responsibility of the Government. However, incentive payments for health staff, based on performance, have been included in local costs to be financed by the communities.

In the absence of any mechanism for ensuring the financing of operating costs in the governmental health systems, the health centres found themselves virtually without drugs. The population, therefore, has been forced to use other sources which are sometimes quite expensive. A study carried out in the Pahou PHC Project prior to project implementation revealed average health care expenditures per illness episode to be US$ 2.70. In addition, the quality of drugs was suspect. According to a report by the Nigerian Federal Ministry of Health, half the antibiotic capsules produced in Nigeria, the principal source of drugs for the Benin market, contain only starch.

In Guinea, the health system was totally in ruins and substantial amounts of money were required to restructure it. The health budget made up only 2.5 % of the national budget and again, 80 % of it was spent on salaries. With this meager budget, local operating costs could not be covered. However, community financing of the health system was an integral part of the country's decentralization policy. This policy included local financial management of a portion of the revenue generated from direct taxes. Community financing aimed at covering local operating costs, including drug costs, but not health staff salary costs.

Three basic alternatives exist for community financing :

— a fixed consultation price (regardless of the type of treatment given) ;

— direct payment for drugs (at prices proportional to their real costs) ;

— pre-payment schemes where periodic contributions are made, independent of whether one uses the health services or not.

Table 7 summarizes the advantages and disadvantages of these different alternatives.

Both Benin and Guinea have chosen a community financing system which combines the first and second alternative : a price paid for a complete treatment. This price is set in function of the actual costs of drugs provided as treatment. However, in certain vital treatments, prices will be subsidized. Every health problem has a single corresponding price, even if several alternative treatments exist (Appendix 1).

With such a pricing system, the link between revenue and the quantity of drugs used helps control potential leakages better than a fixed consultation price. Experiences in the Benin/German and Benin/Swiss project and the Doctors Without Borders project in Guinea which have all used a fixed consultation price have confirmed this.

Because revenue is directly proportional to drug costs, such a system reduces the risk of bankruptcy. Cost variability at health centre level is mainly due to variability in the quantities of drugs used. With a fixed consultation payment or pre-payment, overprescription can lead to financial failure.

TABLE 7

VARIOUS OPTIONS FOR COMMUNITY FINANCING

POSSIBILITIES	ADVANTAGES	DISADVANTAGES
Fixed price per consultation (regardless of disease)	— motivates patients to finish treatment — facilitates financial management — willingness-to-pay — subsidizes expensive treatments	— risk of bankruptcy, if there is heavy utilization of expensive care or if there is overprescription — prices too high for treatments costing very little — difficult to control revenue and drug consumption — risk of bankruptcy if utilization is low
Price for each drug	— willingness-to-pay — less risk of bankruptcy (as price is fixed in function of drug costs) — easy to control revenue and drug consumption	— de-motivates patients from completing treatment — risk of bankruptcy if utilization is low — serious illnesses are costly — risk of overprescription to increase revenue
Pre-payment scheme (health insurance system)	— promotes service utilization — does not put the financial burden on the sick	— reticence to pay for a hypothetical, future need — risk of overutilization of services or overprescription leading to bankruptcy — control of drug consumption difficult

In contrast to a pre-payment system, the pricing system used in Benin and Guinea has the advantage that revenue increases as health service utilization increases. However, if utilization is low, there is a risk that the fixed operating cost might not be recovered.

From a medical point of view, this pricing system encourages patients to finish their treatments, in contrast to a system where they pay for each drug. In addition, there are fewer risks of useless prescriptions.

Ethically, however, this system, like payment of drugs or a fixed consultation price, places the financial burden on the sick. Moreover, unlike the fixed consultation price, this system could cause difficulties in payment for patients suffering from severe illnesses requiring expensive treatments. To address this last point, a system of internal subsidies has been put into place.

THE PRICING SYSTEM

The pricing system in Benin was established on the basis of data from the Pahou PHC Project. This project had implemented both a community financing system and a rationalization of treatments through the use of flow charts. As the national EPI/PHC programme was implementing similar strategies, the utilization level (0.6 first visit per person per year) served as a basis for cost and revenue predictions for health centres in the rest of the country. The process of developing the pricing system began with the identification of those costs that were to be recovered from community financing system revenue (see Table 8).

Assuming an effective payment rate of 75 % of expected or theoretical revenue (thus, allowing for indigents who would not pay

TABLE 8

ESTIMATIONS OF ANNUAL RECURRENT COSTS FOR A COMMUNE OF 6,000 PEOPLE IN BENIN BASED ON EXPERIENCES FROM THE PAHOU PHC PROJECT (FCFA)

Essential drugs costs		600,000
Fixed costs		
Kerosene (sterilization, refrigerator)	48,000	
Gasoline for motorbike	18,000	
Office supplies	60,000	
Gasoline for District Medical Officer's supervision	24,000	
Building maintenance	60,000	
Contribution to Provincial Health Office	30,000	
Total fixed costs		240,000
VHW remuneration		240,000
Personnel incentives		276,000
Total		1,356,000

Details of fixed cost calculations can be found in Appendix 3.

and for leakage), the total theoretical revenue required would be 1,356,000 divided by 0.75, or 1,808,000 FCFA. The ratio between theoretical revenue and drug costs is therefore 1,808,000 divided by 600,000, or three. These calculations imply that, on the average, the treatment price shold be three times the drug costs of that treatment.

The average margin applied in establishing prices was calculated using the above method. However, certain prices were adjusted : a 2,500 FCFA (US$ 8) ceiling per treatment was introduced, and reductions were made for treatments judged to be too expensive, for those addressing serious illnesses, or for addressing illnesses in young children. For example, the treatment price for hemorrhage is only 1.35 times the real drug cost. The real cost for oral rehydration salts (used for diarrhea in children) is 60 FCFA, but the treatment price was originally set below that at 50 FCFA, and has subsequently been made free of charge. Prices for non-serious illnesses with a high demand and low cost of treatment were increased ; for example, the treatment of intestinal parasites has a real drug cost of 30 FCFA, while the treatment price was set at 350 FCFA for an adult. Prices of drugs at the local markets were also taken into consideration in making price adjustments.

It should be noted that chronic diseases with long treatments, such as tuberculosis, leprosy and onchocerciasis, are treated free of charge in Benin. These programmes are assisted by external aid organizations.

Treatment prices implemented in Benin and Guinea are presented in the Appendix 1.

In Guinea, the multiplication factor of three was judged to be too high, given the low standard of living in the country. Prices were calculated using a multiplication factor of 2.5 times the real drug costs. The cost recovery capacity of these prices was verified by estimating the costs and revenue for a health centre at sub-prefecture level on the basis of epidemiological data. Total drug costs were projected by multiplying the unit costs of each drug with the expected drug consumption (cf. Table 5). Then other local operating costs (information system, incentive payments for personnel, other fixed operating costs, etc.) were estimated. Revenue was projected using the hypothesis that 80 % of the users would effectively pay the fees (set at 2.5 times the drug costs).

This procedure provided a verification that prices set at 2.5 times the drug costs would produce a level of revenue higher than the estimated costs.

Such verification could be done for other pricing systems. If one applied a fixed consultation price, drug and other operating costs must still be estimated. Based on service utilization data, expected revenue can be predicted for different consultation prices. If reliable service utilization data are not available, epidemiological data can be used. These calculations facilitate selecting a price which should allow the programme to reach the desired cost recovery level.

For setting contributions in a pre-payment scheme in a project where services have already been rationalized, calculations can be made on the basis of cost data (drugs and other operating costs) and service utilization data. However, one must be aware that if there is no mechanism for moderating utilization, the pre-payment scheme runs the risk that service use will be much higher than expected. If services have not yet been rationalized, the calculation of drug costs should be based on standardized treatments, and on a maximum utilization rate, obtained through epidemiological data.

Calculating the contribution required from each participating member simply involves dividing the estimation for total cost by the expected number of people contributing.

BALANCING COST RECOVERY AND EQUITY

ANALYSIS OF EPI/PHC HEALTH CENTRE COST RECOVERY RATES

In Benin, an overall cost recovery rate of 139 % was obtained (see Table 9) : i.e., revenue was greater than was needed to cover operating costs. If salaries were included, the cost recovery rate would have been 57 %.

In Guinea, cost recovery was 103 %, with revenue just covering operating costs (excluding salaries). The rate of cost recovery if salaries are included comes to 51 % ; however, it should be noted that the current level of salaries is insufficient.

These figures mask the large variation in cost recovery rates among health centres. In Benin, these rates vary between 70 % and 380 %. Only three centres have cost recovery rates below 100 %, demonstrating that even health centres with relatively low revenue manage to recover their operating costs. In Guinea, cost recovery rates vary from 30 % to 120 %, with 40 out of 73 centres having rates over 100 %.

These data demonstrate that local cost recovery is feasible in today's conditions. However, including salaries under this community-level financing would require a sharp, possibly prohibitive increase in treatment prices. Thus, an essential condition for the PHC system's sustainability will be the government's ability to maintain health staff salaries at a reasonable level.

Comparing centres with good cost recovery rates and those barely recovering their operating costs indicated four types of situations.

TABLE 9

REVENUE, COSTS AND COST RECOVERY AT HEALTH CENTRE LEVEL (BENIN, GUINEA)

	Revenue			Operating costs (excluding salaries)			Average cost recovery rate
	Minimum	Maximum	Average	Minimum	Maximum	Average	%
GUINEA	US $ 450	US $ 7,080	US $ 2,439	US $ 1,085	US $ 6,542	US $ 2,368	103
BENIN	US $ 155	US $ 5,550	US $ 2,166	US $ 191	US $ 8,591	US $ 1,555	139

The "profit" margin between revenue and drug costs was too low, either because of low average revenue generated per patient, as in Tempegre in Benin, or because the average drug costs per patient were very high, as in Seloumain Guinea.

Average fixed operating costs were too high (costs/patient) in cases where the number of patients seen per month was too low, like in Peonga in Benin, or where the level of fixed costs was too high, like in Ekpe.

There are several causes for these four situations in which cost recovery is not obtained.

Average revenue per patient will be high when many people do not pay, when subsidized treatments predominate among treatments given, when preventive services make up a large share of services delivered, when flow charts or fee schedules are not followed, when health staff continue to write prescriptions for drugs purchased in private pharmacies, or when financial management is faulty.

Average treatment costs per patient will be high when costly treatments make up a large share of treatments given, when drugs disappear, or when flow charts are not followed.

The average number of consultations will be low when there are resource availability problems, when access to the health centres is low, when the population does not find the services acceptable, when the target population is small, or when there is effective competition from other sources of care.

Fixed operating costs will be high when budgeting is poorly done, when infrastructure is large or in bad condition, or when travel costs are high due to a dispersed population in the catchment area.

PRICING AND EQUITY

To mitigate the inequity produced by putting the burden of payment on the sick, the pricing system was adjusted in accordance with the seriousness of the illness. Moreover, revenue generated from curative care finances the cost of preventive activities. In Benin, vaccination and growth monitoring are delivered free of charge. For prenatal care, the pregnant woman pays only 500 FCFA for which she receives an unlimited number of visits, malaria and anemia prophylaxis, and tetanus toxoid vaccinations.

In early 1989, the impact of user fees on the health service utilization was assessed. A survey was carried out in all six provinces of Benin. One commune health centre was selected in each province among those implementing the EPI/PHC programme strategies for a year. People having experienced an illness episode during the 15 days prior to the survey were interviewed about where they sought care and how much money they spent on treatment. Households were subsequently classified into three socio-economic groups in function of their housing conditions, means of transport, number of economic activities, and participation in a tontine (a kind of local saving mechanism). This survey produced data on 2,099 individuals (Table 10).

Average expenditure per episode was 500 FCFA, but there was much variation, depending on the source of care. The average cost for those using the health centre exclusively (600 FCFA) is in the same order of magnitude as the average cost of all sources of care combined (500 FCFA and 600 FCFA). In contrast, those using a combination of the health centre and other sources of care had substantially higher average expenditures : 600 to 2,500 FCFA. Those stating that they had not used the health centre for reasons other than financial, spent amounts equivalent to those who used only the health centre (600 FCFA). Those claiming not to have used the health centre for financial reasons did indeed spend less on the average (150 FCFA). These 802 declaring financial motives for seeking other sources of care represent 38 % of the total sample.

The socio-economic level of the household seems to have little influence on the choice of treatment source and on the level of expenditure. A larger proportion of lower socio-economic category used the health centre (12 %) than those in the high socio-economic category (4 %)

The percentage of those stating they did not use the health centre for financial reasons is similar, regardless of socio-economic category, suggesting that factors other than capacity to pay play a larger role in the patient's decision about where to seek care.

TABLE 10

DISTRIBUTION FOR MEDIAN HEALTH EXPENDITURES FOR AN ILLNESS EPISODE BY SOURCE OF CARE AND BY SOCIO-ECONOMIC GROUP (in CFA)

		DISPENSARY		OTHER SOURCES		
SOCIO-ECONOMIC GROUP		**Only**	**With other sources**	**Financial reasons**	**Other reasons**	**TOTAL**
HIGH	Median	500	1,700	150	500	500
	Number	20	119	193	236	568
	(%)	(0.04)	(0.21)	(0.34)	(0.42)	(1)
MIDDLE	Median	1,000	2,500	175	500	500
	Number	65	211	408	346	103
	(%)	(0.06)	(0.20)	(0.40)	(0.34)	(1)
LOW	Median	600	3,000	100	300	400
	Number	61	100	201	139	501
	(%)	(0.12)	(0.20)	(0.40)	(0.28)	(1)
TOTAL	Median	600	2,500	150	500	500
	Number	146	430	802	721	2,099
	(%)	(0.07)	(0.20)	(0.38)	(0.34)	(1)

Dispensary only : people having used only the dispensary.
Dispensary with other sources : people using the dispensary plus some other health structure.
Other sources : people having used other sources and not using dispensary.
Financial reasons : people not using dispensary for financial reasons.
Other reasons : people not using dispensary for non-financial reasons.

The data from this survey indicate that treatment costs in the EPI/PHC health centres are in the same order of magnitude as the average costs for other sources of treatment. There remains a part of the population that stated they did not use these health centres for financial reasons. However, response was found to be independent of socio-economic status, suggesting that these households give priority to other types of expenses. Only 201 people in the sample belonged to the lower socio-economic category and stated financial reasons for not using the health centre. Thus, for only 10 % of the cases could non-utilization be linked to an incapacity to pay.

Additional research has been planned to verify the validity of socio-economic indicators, assess financial accessibility of the communities, and define the notion of "indigence".

At the moment, the health committees are responsible for identifying the indigents in their communities and deciding on what measures should be taken to enable them to use perinatal and curative care. Vaccinations are already free of charge. Up to this point in Benin, victims of natural disasters and abandoned women with their families have been considered indigents.

BUDGETING AND GIVING RESPONSIBILITY TO THE COMMUNITY

In Benin, the budgets were established for the financial balance in the health centres at the end of 1988. This amount consisted of 1988 revenue minus the authorized expenditures for this first phase (5,000 FCFA/month) to cover petty operating expenses.

How to prepare the budget ?

In Guinea, the budgeting process is similar, but is carried out every six months for revenue generated in the preceding six months. This budget process is not provisional. It involves allocating already generated revenue to various expenditure categories. This method of budgeting helps avoid bankruptcy.

In Guinea, the first budgeting exercise took place in June 1989 for the second semester of that year. The budget was constructed for the revenue generated during the previous six months (November 1988 to April 1989). Revenue generated prior to November 1988, minus expenses made up to April 1989, were used to create a reserve fund.

What should be budgeted ?

Benin created seven main budget items which were to be allocated resources in order of priority :

— drugs and information tools (forms, files, etc.) : The amount budgeted here was calculated from the unit costs and the average monthly consumption during the previous six months ;

— petrol for the cold-chain and sterilization : this amount was estimated at a fixed 40 liters per month ;

— petrol for the vehicles : this budget item was estimated using mileage costs of 15 liters per hundred kilometers for a car and 4 liters per hundred kilometers for a motorbike ;

— office supplies ;

— incentive payments for health staff : health personnel receive 200 FCFA for each child correctly and completely vaccinated before his first birthday and for each pregnant woman receiving at least three prenatal consultations, two tetanus toxoid vaccinations (with at least a one-month interval and at the latest, two weeks before delivery), and who delivered in the health centre. They also receive 50 FCFA for each curative consultation. Incentive payment budgets were established on the basis of the most recent monitoring results. The purpose of these incentive payments is to motivate personnel to increase coverage. Curative care was included in the incentive payment scheme in order to improve health centre revenue ;

— amortization of vehicles and refrigerators ;

— other investments.

In Guinea, certain budget items are mandatory and are not subject to local management decisions. Resupply of drugs/information tools and resources necessary for vaccination activities are obligatory budget items. The amounts for drugs and information tools are calculated on the basis of their previous six months' consumption, while for vaccination activities, petrol costs are budgeted at 200 liters of petrol for the cold-chain and sterilization and petrol for vehicles according to the number of miles to be covered.

Once these mandatory items have been included in the budget, the Management Committee and the health centre staff can decide how to use the remaining money. The proposed budget items are illustrated in Table 5 with the example of the Beyla health centre budget for the second half of 1989 (see Table 11).

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At this time, the incentive payments for health centre staff are 7,500 Guinean francs (GF) per month for the head nurse and 5,000 GF for other health staff (there are about 600 GF in 1 US$ and 2 GF for each FCFA). Other mechanisms for incentives are currently being studied.

A proportion of revenue, corresponding to the value of drugs and information tools consumed, is blocked in a bank account and constitutes a reserve fund, for as long as UNICEF continues to support these drug and information tool costs. In both Benin and Guinea, the pricing system was created so that prices are proportional to treatment costs. Thus, barring corruption, this system guarantees recovery of drug and information costs. Drug resupply constitutes the first priority for budgeting, whatever the revenue level.

Auditing the budget

In Benin, the first budgets, prepared for the second semester of 1988, were submitted for approval to the national EPI directorate. The second budgets, covering the first semester of 1989, were prepared locally during the monitoring sessions, and were approved by the President and Treasurer of the Management Committee and by the District Medical Officer.

In Guinea, a first budget proposal, prepared by the Management Committee, the health staff, and the Prefectural Medical Director,

TABLE 11

HEALTH CENTRE : BEYLA CENTRE

PREFECTURE OF BEYLA

BUDGET FOR THE PERIOD : 01/07/89 TO 31/12/89
ESTABLISHED : 27/05/89

RESERVE FUNDS - 26/05/89 = 1,982,730 GF

AMOUNT TO BE BUDGETED..... 1,701,300 GF

INCOMPRESSIBLE EXPENSES

2.1	Resupply of essential drugs	755,217 GF
2.2	Resupply of information tools	134,906 GF
2.3	Fuel for vaccinations	
2.3.1	Cold-chain	67,500 GF
2.3.2	Sterilization	46,250 GF
2.3.3	Outreach activities	49,536 GF

TOTAL INCOMPRESSIBLE EXPENSES..... 1,053,409 GF

63

OTHER EXPENSES

3.1	INCENTIVE PAYMENTS	225,000 GF
3.2	OFFICE SUPPLIES	36,025 GF
3.3	CLEANING SUPPLIES	5,700 GF
3.4	BUILDING MAINTENANCE	60,000 GF
3.5	MOTORCYCLE MAINTENANCE	45,000 GF
3.6	MISCELLANEOUS	40,000 GF
3.7	AMORTIZATION	51,666 GF
3.8	FURNITURE	100,000 GF
3.9	UNFORESEEN	62,000 GF

TOTAL OTHER EXPENSES ..... 625,391 GF

TOTAL EXPENSES (2) plus (3) ..... 1,678,800 GF

ADDITIONAL RESERVES..... 22,500 GF

is presented to the Sub-Prefect who represents the State Secretariat for Decentralization at the sub-prefectural level. The budget is signed jointly by the Sub-Prefect and the Prefectural Medical Director. The budgets are then presented during a regional synthesis meeting following the monitoring session. At this meeting, the budgets are discussed with the Regional Medical Inspectors, the National EPI/PHC/ED Coordination Team, and representatives of the State Secretariat for Decentralization. The definitive version is then sent to the Ministries of Health and Finance and to the State Secretariat for Decentralization for final approval.

Implementing the budget

In Benin, the first budgets were never implemented, due to delays at the central level in giving their approval. The second budget was implemented at the beginning of 1989. However, the bankruptcy of the national banking system has made it impossible to withdraw money deposited in the bank accounts. Therefore, an exception has been allowed and expenditures are being made directly from the current period's revenue. Nonetheless, revenue earmarked for the procurement of drugs and information tools is kept aside.

In Guinea, the prepared budgets have not yet been executed, again due to delays in the administrative authorization. Authorization is expected in the beginning of 1990 so that the second budgets, prepared in December 1989, can be implemented. However, small operating expenditures (up to 10,000 GF) and payment of staff incentives have been authorized. The Management Committee instructs the Treasurer to make payments, while the Committee's President assures that the expenditures are made according to the joint decisions made. Each expenditure is entered into the account book, numbered and accompanied by its receipt.

The Guinean procedures for incurring expenditures are similar to those adopted in Benin : after the health centre nurse and the Management Committee President have agreed on the expense to be made, the Treasurer hands the sum required to the member of the Management Committee responsible for the purchase. The receipt is registered as soon as it arrives. For small amounts, the formal agreement of the President is not necessary and the upper limit of these is left to the initiative of each committee.

The account book is checked systematically during both supervision and monitoring sessions. Revenue registered in the account book is compared to the information in the drugs and revenue register and in the treatment register, while expenses entered into the account book are checked against receipts.

In practice, this system appears to be sufficiently transparent to facilitate identification and explanations of management errors. For example, in one centre, supervision had identified a difference of 5,000 FCFA between the account book and the drugs and revenue register. An investigation revealed that the nurse had forgotten to deposit money in the strong-box while the Treasurer was away.

In another centre, a difference of 150,000 FCFA was discovered between the amount of money according to the account book, and

actual cash (in the strong-box and in the bank account). An examination of receipts of expenses and bank statements showed that the first three deposits, amounting to a total of 120,000 FCFA, had been made into another bank account and had never been transferred to the community's account. Purchases made without receipts accounted for the remaining 30,000 FCFA, and this sum was subtracted from staff incentive payments.

These checks carried out by local health staff, the President and Treasurer of the Management Committee, and the supervisor were able to identify and resolve management problems, clarify responsibilities, dispel suspicions, and discourage dishonesty.

LOGISTICAL SUPPORT

DRUG SUPPLY AND DISTRIBUTION

PREPACKED KITS

In the absence of a reliable drug distribution system, the EPI/PHC programmes in Benin and Guinea decided to use pre-packed drug kits. These kits were put together to cover health centre drug consumption for a six-month period. In Benin, the kits were designed for a population of 6,000, and in Guinea for a population of 2,500. The drug quantities were calculated on the basis of one illness episode per person per year. These pre-packed drug kits have the advantages of simplifying drug management and reducing the risk of losses and thefts by facilitating direct delivery to the health centres.

The drugs included in the kits and the quantities of each were determined based on epidemiological estimations and then adjusted in function of consumption experiences in various pilot projects. However, experience revealed the risks involved in such a supply system : when real consumption of certain drugs is different from the initial estimations, stock shortages occur or surpluses build up. Drugs such as iron/folic acid, penicillin V, metronidazole and tetracycline eye ointment experienced stock shortages. In contrast, oral rehydration packets, mebendazole, and chloroquine accumulated, and sometimes had to be discarded because the drugs had surpassed their expiration dates.

In an attempt to solve these problems in Benin, stocks were exchanged between health centres on the basis of their actual cost price. The programme management created provincial level stocks of certain drugs in order to facilitate quick responses to expressed health centre demands. These stocks were purchased from a local firm which had brought its prices in line with UNIPAC, and health centres obtained new supplies of drugs, when authorized by their Management Committees and the national directorate of the programme.

Problems with surplus of certain drugs were exacerbated by original programme protocol. The second drug kit was to be opened as soon as the stock of a single drug was finished in the first kit. When the second kit was opened, the health centre received a third kit during the following supervision visit. The fourth kit was to be purchased by the health centre using community financing revenue. However, community financing revenue was generally not sufficient to finance the fourth kit. In addition, this system obliged the community to purchase stocks of drugs which they did not really need. To remedy this situation, the health centres can now resupply themselves for stocks of individual drugs, after having opened the third kit. These purchases are regrouped at the district level, which takes responsibility for procuring these drugs at the central purchasing unit in Cotonou, on a cash-and-carry basis.

Finally, the drug kit composition (types and quantities) was adjusted to the real consumption patterns for the second order at UNIPAC (Table 12).

TABLE 12

MODIFICATIONS IN THE COMPOSITION OF PREPACKED DRUG KITS IN BENIN

	Drug name	UNIPAC No.	1st Generation Kit	2nd Generation Kit	3rd Generation Kit	Price at 3rd Gen. Kit (UNIPAC 88) US $
1	Acetylsalicylic acid 300 mg	1506002	10 × 1000 tb	25 × 1000 tb	15 × 1000 tb	21.15
2	Benzoic acid + Salicylic acid 6 % + 3 % ointment	1515050	4 × 1 kg	4 × 1 kg	2 × 1 kg	9.16
3	Aminophyllin 200 mg	1505010	–	2 × 100 tb	2 × 100 tb	2.52
4	Aminophyllin 250 mg / 10 ml inj.	1505015	–	1 × 10 vial	1 × 10 vial	1.36
5	Benzyl benzoate sol. conc. 90 %	1520000	2 × 1 l	2 × 1 l	2 × 1 l	9.94
6	Butyl-scopolamine	6701687	–	1 × 1000 tb	1 × 1000 tb	16.67
7	Chlorhexidine solution 20 %	1531500	2 × 100 ml	2 × 100 ml	4 × 100 ml	6.88
8	Chloroquine 100 mg base	1532002	18 × 1000 tb	18 × 1000 tb	6 × 1000 tb	32.16
9	Cotrimoxazole 400 mg + 80 mg	1537100	3 × 500 tb	11 × 500 tb	10 × 500 tb	69.8
10	Diazepam 5 mg / ml 2 ml	1543625	1 × 10 vial	4 × 10 vial	2 × 10 vial	2.08
11	Water for injections 5 ml (solvent)	1543803	3 × 100 vial	10 × 50 vial	8 × 50 vial	21.44
12	Ergometrine 0.2 mg / ml 1 ml	1545000	1 × 10 vial	1 × 10 vial		
12	Methylergometrine 0.2 mg / ml 1 ml				1 × 1000 vial	0.7
13	Iron/Folic acid 60 mg + 0.25 mg	1550010	5 × 1000 tb	5 × 1000 tb	12 × 1000 tb	16.92
14	Aluminium hydroxide 500 mg	1504000	–	2 × 100 tb	2 × 1000 tb	12.5
15	Ringer lactate 500 ml with IV	1560800	20 bottles	40 bottles	10 bottles	10.5
16	Lidocain 2 %, 50 ml	1555300	1 bottle	2 bottles	2 bottles	0.92
17	Mebendazole 100 mg	1555355	30 × 100 tb	30 × 100 tb	30 × 100 tb	29.1
18	Metronidazole 250 mg	1555650	1 × 1000 tb	1 × 1000 tb	1 × 1000 tb	7.29
19	Niclosamide 500 mg	1555885	1 × 100 tb	1 × 100 tb	1 × 100 tb	2.42
20	Paracetamol 500 mg	1555962	–	5 × 200 tb	5 × 200 tb	11
	Praziquantel 600 mg		1 × 100 tb			
21	Procaine Penicillin 400.000 UI		3 × 100 fl	–	–	
21	Procaine Penicillin 3 g	1560685		4 × 50 fl	4 × 50 fl	49.88
22	Promethazine 25 mg	1559200	–	3 × 100 tb	3 × 100 tb	0.96
23	Quinine inj. 300 mg / ml 2 ml	1560600	15 × 10 vial	15 × 10 vial	15 × 10 vial	28.65
24	Oral rehydration salts	1561105	200 packets	400 packets	400 packets	28
25	Tetracycline 1 %, ophthalmic ointment 5 g	1510000	70 tubes	70 tubes	70 tubes	12.6
26	Thiamine 50 mg	1572010	5 × 100 tb	10 × 100 tb	10 × 100 tb	10.8
27	Gentian violet 25 g powder	1552002	1 bottle	1 bottle	1 bottle	0.81
28	Suture needles	758505	1 package	1 package	1 package	1.13
29	Bandages 50 mm × 9 m	512101	200 rolls		200 rolls	24
29	Bandages 1 m × 100 m	521900		1 roll		
30	Cotton 500 mg	519600	10 rolls	10 rolls	4 rolls	6
31	Umbilical ligature 100 m	566000	1 roll	1 roll	1 roll	3.29
32	Suture thread	565500	16 packages	16 packages	2 packages	3.34
33	Sparadrap 25 mm × 10 m	501050	5 rolls	5 rolls	5 rolls	2.9
34	Razor blades		25 packages	no longer in kit	no longer in kit	
35	Soap 113 g		15 packs	no longer in kit	no longer in kit	
					Total	456.87
					C + F	+ 25 %
					TOTAL	571.09

In conclusion, pre-packed drug kits proved beneficial at the start-up of the programme, as they saved precious time in distribution of the drugs and facilitated control. Subsequently however, these advantages were outweighed by the risks of wastage (creating additional costs) and by the endless adjustments required for each specific locality. These adjustments created delays, and the system was not able to provide sufficient flexibility to respond to the changing demands of the users. Therefore, supplying drugs in function of their respective stock

levels is being used preferentially to assure the continuous availability of drugs and to reduce the costs incurred through losses.

DRUG DISTRIBUTION AND MANAGEMENT

In Benin, three pre-packed kits, each containing 40 essential drugs, are provided to each commune health centre. Each kit has a purchase value of US$ 1,200. In addition to facilitating programme management in the start-up phase, the sale of these donated drugs generally generates sufficient revenue to create a reserve fund and to finance certain local functioning costs.

In both Benin and Guinea, the communities have to ensure a minimum number of storage security measures before the donation of essential drugs is provided. These include environmental measures (a waterproof roof, a flood-proof location, sufficient ventilation, etc.) and measures against thefts (burglar bars in the windows, solid doors with two locks, one for the President of the Management Committee and the other for the health centre nurse).

When the stocks arrive, the drugs are handed over to the President of the Management Committee and the nurse in charge of the centre. Together, the President and the nurse make a complete inventory and register the drug quantities on the stock forms (see Figure 15).

The drugs are stocked in the secure room prepared for this purpose by the community. These drugs constitute the main stock. Periodically (generally each month), the President of the Committee and the nurse in charge of the health centre take drugs from this main stock to create small stocks kept in a closed cupboard in the treatment room which are available for daily use. Supervisors from the district, provincial, and national level verify drug management and storage conditions during their routine visits and during the semestrial monitoring sessions.

A CENTRAL PURCHASING UNIT IN BENIN

During a coordination meeting in 1988, the various organizations and projects importing their drugs expressed an interest in combining their purchases and proposed to create a Central Purchasing Unit. The World Bank already had put forward such a recommendation in the context of its own project, and had offered financial support for it. The Central Purchasing Unit is now being created in Cotonou with the assistance of the World Bank, the EEC, UNICEF and WHO. This Central Purchasing Unit will be financially and managerially independent, but will have both government and community representatives.

Procurement from the Central Purchasing Unit involves the following procedures : the person in charge of the district pharmacy and the district accountant take inventory of the drugs in stock and register the additional quantities needed on an order form (in duplicate). The President of the Management Committee and the person in charge of the commune health centre then sign the order form. One copy is used as an invoice at delivery : the nurse pays in cash for the quantities delivered and registered on this form.

DRUG DONATIONS

In Benin, four types of drug donations exist and distinctions are made in how they are used.

For drugs received as emergency assistance in the case of natural disasters, they are not sold.

For drugs included in the national essential drug list that are received as a gift or as a special short- or long-term assistance, they are registered on the stock forms and sold.

For drugs not included in the national essential drug list, the Director of Pharmacies must make a decision concerning their utilization, in line with the formal procedures.

For drugs used for special programmes (tuberculosis and leprosy drugs, contraceptives, etc.), the central purchasing unit negotiates with the supplying organization on how to proceed.

VACCINE STORAGE AND SUPPLY

COLD-CHAIN

Refrigerators and freezers with relatively large storage capacity and the ability to maintain adequate temperatures for several hours in case of electricity breakdown were supplied at the level of the national EPI directorate. Using several autonomous units reduces the risk of losing large quantities of vaccines in the case of breakdowns. The pre-existing cold-room, having limited capacity, is used as reserve space. The central vaccine warehouse has been equipped with an electric generator sufficiently powerful to run all the electrical equipment.

Refrigerator and freezer temperatures are registered twice daily. In addition, control cards for high temperature (3M cards) and freeze watches are stored with the vaccines to verify storage conditions.

In Benin, the vaccine warehouse in the provincial capitals are equipped with the same types of freezers and refrigerators as at the central level.

The health centres in the district and prefectural capitals which supply vaccines to the communes and sub-prefectures, are equipped with large refrigerators. These can operate on either electricity or kerosene.

In Benin, smaller refrigerators, either electrical or kerosene, were originally selected for the commune health centres because of their capacity to maintain a correct temperature for a long time in case of breakdown. In addition, their small size reduces the risk of being used for food storage. However, the burners of these kerosene refrigerators were very fragile and caused problems. As a consequence, it was decided to re-equip the centres. They were provided with the same refrigerators that have been used from the start in Guinea. These are more resistant, and easier to use and maintain.

Each centre was supplied with thermometers to check the temperatures twice a day, and with 3M cards and freeze watches for cold-chain surveillance.

STERILIZATION AND INJECTION EQUIPMENT

In Benin and Guinea, each centre was equipped with two steam sterilizers (capacity in function of the target population size), as well as a kerosene stove and syringes/needles kits that can be sterilized 200 times. When the health staff have been adequately trained, the steam sterilizers are simple, practical, and efficient in ensuring rigorous asepsis. In addition, they are easily transportable to outreach vaccination sites.

The policy of one syringe and one needle for each individual to be vaccinated required establishing buffer stocks at the start of the programme to be able to ensure a quick replacement of one or two kits each year.

SUPPLY OF VACCINES

In both Benin and Guinea, vaccine orders for the first six months for EPI/PHC programme health centres were based on the use of one vial of each vaccine per day. This is in line with the policy of using any service contact as an opportunity to vaccinate. For the other centres, vaccine consumption was estimated in function of use in the previous periods. In addition, the health centres were provided with a buffer stock, composed of the theoretical vaccine consumption for three months.

Subsequent orders are placed as soon as the stock reaches a pre-determined critical level. The vaccine stock size is adjusted regularly in function of actual consumption.

In Benin, the provincial level places orders at the central warehouse every two months. The quantity ordered corresponds to the quantity used during the past period, unless part of the buffer stock has been used. In that case, the quantities are adjusted. Ordering on a fixed schedule offers the possibility of combining orders for all of the vaccines and thus reduces transport cost. Making the intervals between orders relatively short reduces the risks of wastage. In Guinea, the prefectures are supplied directly from the central level, during quarterly supervision visits.

In Benin, district capital are resupplied with vaccines during the monthly supervision. The quantity provided corresponds to the quantity used during the month, to which a 50 % buffer stock is added.

In general, at commune and sub-prefecture level, one-month stocks correspond to one vial of each vaccine per working day plus a buffer stock of 50 %. The resupply of vaccines is ensured by the prefectural supervisors in Guinea, while in Benin, the health centre nurse goes to the district with a vaccine carrier.

TRANSPORT

The national EPI directorates and the provincial/regional directorates were provided with 10 diesel-powered Toyota high-lux pickups in both Benin and Guinea. These vehicles are to be used for :

— delivery of material : cold-chain, injection and sterilization material, pre-packed kits of essential drugs, forms, files, registers, vaccines ;

— supervision and monitoring in the periphery ;
— start-up EPI/PHC activities and vaccination campaigns.

These pickups, with two passenger cabins, can transport several people, but can carry only limited freight, hindering vaccine transport. In addition, in Guinea, three trucks were provided to ensure quarterly distribution of fuel, drugs, and vaccines to the prefectures.

In Guinea, all 36 prefectures received a Toyota high-lux for their supervision and supply activities. UNICEF controls the use of these vehicles and finances their maintenance and petrol costs.

In Benin, each District Medical Officer was provided with a 404 Peugeot pickup truck for supervision and supply to the peripheral health centres. These trucks are assembled in Nigeria and spare parts are readily available. Maintenance and operating costs of these cars are the responsibility of the district health centre, financed through community financing revenue. The control of their use is the responsibility of the Management Committee.

The nurses of the health centres received motorbikes for their travel to the villages for mobilizing the communities, identifying the target population, and conducting MCH clinics.

In Benin, these motorbikes are provided to the nurses on a rental/purchase contract. This arrangement motivates the personnel and ensures better maintenance of the motorbikes. However, because the nurses are authorized under this system to use the motorbike for personal purposes, there are frequent breakdowns. At the start of the programme, the lack of spare parts caused certain motorbikes to remain non-operational and it was decided to provide the nurses with a minimum of spare parts. Minor repairs are the responsibility of the nurses, whereas the national EPI directorate covers major repairs. The costs of petrol were financed by UNICEF during the first six months of the programme, after which the community financing system took over responsibility for these expenses.

TRAINING AND SUPERVISION

TRAINING

MANAGEMENT TRAINING FOR PRIMARY HEALTH CARE

Implementing the Bamako Initiative principles on a national scale requires competent teams at the central and intermediate levels. To help create a critical mass of skilled planners and managers, exchanges between programme staff in several countries of West and Central Africa were encouraged. Through these exchanges, health professionals from Benin, Guinea, and Nigeria developed a series of management training modules for Primary Health Care. They were assisted in this task by the Pahou PHC Project research staff, technical staff from the Swiss and French cooperation, the Benin/Dutch and Benin/German projects, and from UNICEF.

These modules were based on the experiences in planning, management, and monitoring of Bamako Initiative strategies. These training modules focus on the intermediate and peripheral levels in the following fields :

— definition of Primary Health Care : situation analysis, choosing interventions related to maternal and child health ;

— coverage analysis : identifying the target population for the selected interventions, coverage determinants, obstacles in achieving coverage, selecting corrective action ;

— microplanning of strategies to solve the problems : defining the target population, determining tasks and required resources, setting feasible objectives ;

— task analysis : skills required, job descriptions for better personnel management ;

— information, education and communication : principles and methods of communication ;

— essential drugs : advantages of generic-name essential drugs, choosing drugs and calculating required quantities, supply system, logistical support ;

— community financing : community participation in the recovery of local functioning costs, estimating fixed and variable costs, pricing of services, budgeting expenditures by the community ;

— management of logistical resources : storage conditions, supplying drugs and vaccines, management of drugs and financial resources ;

— flow charts and supervision : developing flow charts, their use in rationalizing treatments, methods of supervision for improving service quality ;

— selection of indicators for monitoring the coverage of MCH activities ;

— choice and use of information sources for monitoring : developing information systems that integrate service-based and population-based information ;

— monitoring : assessing progress and problems of coverage with interventions, designing new strategies with health personnel and community representatives.

These modules each start with a short text to convey certain essential knowledge. Exercises follow to develop practical skills. Finally, case studies or discussion questions are presented to develop attitudinal and communication skills. Facilitator's notes have been added to guide the teaching. These modules have been tested in each country, and have been adapted to the local context before implementation.

TECHNICAL TRAINING

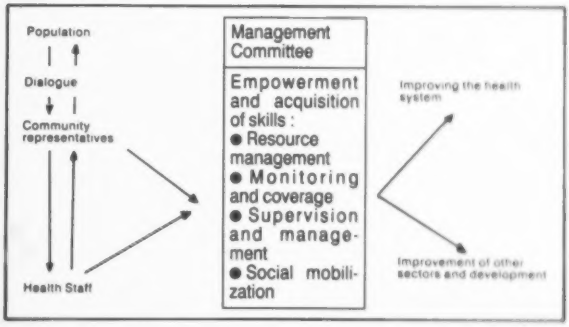
A single technical training session focused on three key areas : EPI techniques, using modules developed by WHO ; cold-chain maintenance and management, also using WHO modules ; and flow charts. In this last area of training, the nurses themselves developed their own flow charts, supervised by physicians and assisted by clinical specialists.

TRAINING OF MANAGEMENT COMMITTEES

Community participation is one of the key elements of the Bamako Initiative which strives to give the populations real responsibility in the management of the health system. The management skills they acquire in working with the health system will serve them in other development activities.

The Management Committees consist of community representatives and health staff. Together, they are the two main actors in promoting community participation. The community representatives are responsible for maintaining dialogue with the communities. Resolving the health problems in the community requires that the various parties have skills in several domains : drug management, management of financial resources, supervision, monitoring of coverage, social mobilization, etc (see the following scheme).

In the two countries, the creation of Management Committees within the EPI/PHC programme took place through a series of steps :



— development of training modules for Management Committee members, focusing on the tasks they are to carry out ;

— in Benin, training of District Medical Officers involved in the programme : 24 districts during the first phase and 50 during the second phase ; in Guinea, the Secretaries General for Decentralization and

prefectural staff from other related sectors were trained as facilitators for the Management Committees' training ;

— holding village meetings where programme objectives were explained to the population, and where the population was asked to select at least two representatives ;

— nomination of Management Committee members (three to five members including the physician or nurse in charge of the health centre) ;

— training of Management Committee members ;

— participation of committee members in programme management, especially in the monitoring and supervision, during which ongoing training for committee members is provided by the facilitators.

In Guinea, the national programme directors, assisted by a UNICEF consultant, trained a team of four full-time supervisors. In the beginning, this team supervised the health centres together with the Prefectural Medical Officers and the Secretaries General for Decentralization.

In a second phase, regional supervision teams were created, made up of the best Prefectural Medical Officers and Secretaries General, as well as some hospital directors. These regional supervision teams fell under the responsibility of the regional health inspectors, assisted by the national supervisors.

This evolution is part of the gradual decentralization of responsibility for EPI/PHC/ED programme management.

In Benin, District Medical Officers and health centre nurses from the districts and communes incorporated in Phase Two of the programme received the same training as those involved in the first phase. District Medical Officers performing well in the first phase ran these training sessions, supported by the national training team. Health staff were trained in the use of existing flow charts, and they are now participating in the process of revising them.

District Medical Officers, nurses and midwives involved in the second phase were given field training by the health staff from the first-phase centres during their monitoring sessions. The national team supervised this training. Health centre nurses found that participating as facilitators in this practical training was a strong motivating factor.

SUPERVISION IN BENIN

Supervision, a very important aspect of the programme, aims to change health staff behavior, to ensure good service quality, and to reinforce training. The programmes adopted systems of formative supervision which focus on improving health staff skills, instead of on negative sanctions.

The supervision programme started by developing, on a national scale, different forms of supervision by provincial health directors

and medical officers, with the involvement of Pahou PHC Project staff and members of the Guinea programme.

During the first supervision tour, the national team joined the provincial and district health teams in supervising nurses and midwives at the health centres. This joint exercise was used to develop a consensus on the forms and supervision techniques before smaller supervision teams were constructed.

In the two countries, supervision teams spend one day in each health centre, where they examine the quality of curative care (checking the extent to which the flow charts are being followed), the quality of the MCH activities, and the soundness of the drug and financial management. The supervision is carried out through direct observations of health staff at work, and by record analysis. The supervisors try to avoid any direct intervention in the activities of the health staff ; they are present during the consultations without influencing the health worker, and only intervene when asked by the health worker or when their silence would permit harm to be done to a patient. At the end of the consultation, however, the supervisor holds discussions with the health staff to help them improve their skills. The health workers present any problems they may have encountered while implementing corrective actions initiated from the last supervision. The supervisor then gives his assessment of the activities he observed. He congratulates the health staff for positive results and opens up a dialogue on corrective action. The conclusions and the decisions taken during this conversation are registered on the supervision forms.

In the health centres participating in the programme, coverage levels have improved, the quality of care is generally satisfactory, and flow charts are being adhered to. A team spirit between supervisors and health staff has developed, and the health staff have often requested more frequent supervision visits. Health staff skills have improved, and as a consequence, many of these health workers have participated as facilitators for the training of new health workers (during the second phase of the programme). Supervision has also identfied a number of weaknesses in the system, and has provided suggestions for improvements : i.e., simplifying the information and management system. Supervision appears to have contributed to sensitizing health staff about the problems stemming from indiscriminate overprescription : although it could increase revenue, it jeopardizes the quality of care.

AN INFORMATION AND MANAGEMENT SYSTEM FOR PRIMARY HEALTH CARE

In Benin and in Guinea, the development of the EPI/PHC programmes involved the complete revision of the national information and management systems. Four basic principles guided this revision.

Any information registered at a given level of the system has to be used directly at that level by health staff responsible for its collection.

Only information essential for one of the following purposes is retained :

— the provision of direct health services (for example, vaccinations, prenatal care, treatments) ;

— local management of resources and activities (for example, drug and financial management, scheduling of outreach sessions) ;

— supervision of quality of care and management ;

— monitoring of coverage, drug use, and cost recovery.

The information recorded needs to be minimized and repetitions avoided ; for example, all information on illness episodes is recorded in a single curative care register, and not on a variety of forms used for specific programmes (diarrheal diseases, tuberculosis, etc).

Supervision and monitoring should be based, as much as possible, on information collected for the purpose of direct service delivery or management. In this way, collection of additional information is reduced.

INFORMATION SOURCES FOR THE DIRECT DELIVERY OF SERVICES

In both countries, the key information sources for the MCH activities are the maternal cards and the child health cards.

These cards are filed in wooden boxes, one for each village. These boxes are divided into 12 compartments, corresponding to the months of the year. Cards are filed by month of the next appointment.

Information recorded on maternal cards included risk factors identified during the prenatal visits, delivery or post-natal care, preventive actions such as tetanus toxoid vaccinations, anemia prophylaxis (iron and folic acid tablets), and malaria prophylaxis (chloroquine).

The child health cards contain information on vaccinations received, the weight plotted on the growth curve, and actions taken (e.g., channelling in case of a delay in returning for vaccinations). To facilitate this channelling, the child health care is established at the expectant mother's first prenatal visit and filed in the compartment corresponding to the expected month of delivery.

Utilization of prenatal care is high in Benin. With a majority of women making at least one visit during pregnancy, detection of children to be vaccinated is easier. For example, if one month after a child's expected date of birth the child has not been presented to receive a BCG or polio zero vaccination, a message is sent to the village representative to find out why the child did not come and to convince the mother, if needed, to bring the child to be vaccinated. After each vaccination, the card is re-filed in the compartment corresponding to the month of the next appointment. This system allows the health staff to follow up until the child is completely vaccinated. This method has demonstrated its effectiveness for improving vaccination coverage, and it is planned to be adopted for channelling of malnourished children, high-risk pregnancies, and unvaccinated pregnant women.

Health booklets complement the maternal cards and child health cards. They are kept by the mother and contain all the information concerning her pregnancy, the delivery, the postnatal period, and the first three years of the child's life (vaccinations, treatments, risk factors, growth, etc).

Curative activities are recorded in the curative care register, containing information on the patient (major complaints, important signs and symptoms from the flow chart, as well as drugs provided and money received).

Treatment booklets, given to each adult patient, contain these same types of information and facilitate the follow-up of treatments. When a child reaches his third birthday, his health booklet is replaced by a treatment booklet.

INFORMATION SOURCES FOR MANAGEMENT

The management system focuses on three elements : the drugs used, the treatments given, and the payments or revenue. Information on these elements is derived from stock forms, the drug and revenue register and the account books (Figure 17).

Drug stock forms provide an overview of changes in stock levels of drugs and medical supplies. A stock form contains the name of the drug, its form (tablets, vial, etc.), its dosage, its expiration date, details on each movement of stock (date, quantity, source of inputs or destination of outputs), and observations. The Management Committee President and nurse both sign the stock form at each entry or withdrawal.

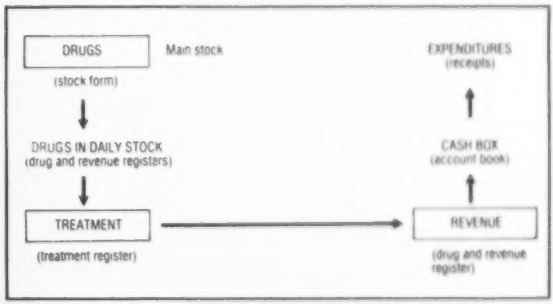


Figure 17 : Management and information system.

The drugs and revenue register records stock movements for the "daily stock" kept in the health centre. This register serves as the "daily use" equivalent of the stock forms used for the main stock. At the end of the day, the daily drug consumption is recorded, based on information in the treatment registers. At the end of each month, the theoretical stock is

calculated from these quantities andcompared to the real stock found by taking inventory. The revenue collected and deposits made in the bank are also recorded every evening in this same register. This makes it possible to check whether the revenue corresponds to the drugs used, and to the sums entered into the account book.

All financial transactions are entered in the account book. Daily revenue and expenditures are recorded in this account book, with their date, revenue sources or type of expenditure. For expenditures, the receipts justifying expenditures are numbered and noted in the account book.

Inventories are carried out on a monthly basis. The first step is taking an inventory of the drugs in the main stock and comparing the amount actually in stock with the amount registered on the stock forms. Any particularities noticed during inventory are registered on the stock forms in the "observations" column. Next, drugs in the "daily stock" in the dispensary are subjected to an inventory. The quantities are then compared to the "theoretical stock", which is calculated from information in the drugs and revenue register. The results of this check are written in the drugs and revenue register in the column "observations". Finally, the amount of cash in the cash box is compared to theoretical "revenue". This theoretical revenue is the sum of revenue generated during the month plus the month's beginning balance minus the sum spent during the month. The final balance is recorded in the account book. Together, the Management Committee President, the supervisor and the health centre head check all the transactions undertaken by the Treasurer that are registered in the account book.

INFORMATION SOURCES AND SUPERVISION

MONTHLY SUPERVISION OF PRICES AND TREATMENTS

The supervisor/Medical Officer randomly selects three treatment booklets to check whether a receipt was given and whether the price recorded corresponds to the duplicate in the treatment register. Next, the supervisor verifies whether the drugs prescribed according to the treatment booklet correspond to those mentioned in the treatment register. Then he checks whether the drugs prescribed, according to the treatment register, are in line with the flow charts for the complaints concerned. Finally, he verifies whether the prices applied in the treatment register correspond to the official price list (see Appendix 4).

MONTHLY SUPERVISION OF FINANCIAL MANAGEMENT

The supervisor/Medical Officer randomly chooses three days and for each day, compares the sum of the prices recorded in the treatment register with the total revenue according to the drugs and revenue register. Then he compares it with the total collected for that day that was recorded in the account book. Next, the supervisor calculates the theoretical balance since his last supervision visit. This balance is calculated by adding the revenue and subtracting the expenses from the balance at the last supervision. Finally he compares whether the amount of money available according to the account book corresponds to the total sum of cash (in the cash box and in the bank) (see Appendix 5).

MONTHLY SUPERVISION OF DRUG MANAGEMENT

Based on three randomly selected drugs, the supervisor totals the quantity of each drug prescribed according to the treatment register and compares it with the quantity used according to the drugs and revenue register. He then checks whether the theoretical stock of these three drugs in the main stock (according to the stock forms) corresponds to the quantity found during that supervision's inventory. Finally, still for the same three drugs, he calculates theoretical quantity for the "daily use" stock from the drugs and revenue register and compares it to an inventory he takes of this "daily use" stock in the health centre (see Appendix 6).

If these checks reveal an important difference, the Medical Officer will carry out a complete inventory of these stocks.

MONTHLY SUPERVISION OF FLOW CHART USE

Two methods of supervision are used : direct and indirect. The direct method uses observations of the health staff at work. This method focuses on history taking, choice of flow chart, decisions taken, drugs prescribed, their quantities, and advice given.

The indirect method is based on the analysis of the registers to verify whether reasons for consultations are registered in the form of complaints, whether the drugs and dosages recorded are in line with the flow charts, and whether referrals to higher levels were justified.

Supervision of EPI

The supervisor verifies all important activities related to vaccinations : functioning of cold-chain material, regular monitoring of vaccine storage conditions, inventory of cold-chain, sterilization, and injection equipment, and quality of the vaccination process itself (checking vaccine expiration dates, sterile injection techniques, correct doses given and vaccination technique, respect of the vaccination calendar, etc). Finally, he checks the management of vaccines stocks (shortages or surpluses), as well as the organization and planning of vaccination sessions.

Supervision of MCH Activities

Supervision of MCH activities focuses on :

— the quality of prenatal and post-natal consultations and deliveries ;

— the management of drugs used in maternal and child health activities : iron/folic acid, chloroquine, contraceptives (if supplied), etc, and the financial management ;

— utilization of the child and maternal card filing system ;

— inventory of MCH equipment and materials.

INFORMATION SOURCES FOR MONITORING (EXAMPLES FROM GUINEA)

The forms for calculating coverage data for each activity specify the procedures for calculating the size of the target population and the values of each indicator. They also point out which information sources to use (see Appendix 7).

There are also forms for compiling information on drug costs, the costs and revenue per patient and for cost recovery. These forms first guide the calculation of drugs used, and then, by multiplying this consumption of each drug during the past semester by its unit

cost, one obtains the sum to be budgeted for their replacement. Based on these figures, as well as the revenue and the number of cases seen during the past semester, average costs and revenue per patient can be calculated (see Appendix 8). These two indicators are used in analyzing cost recovery.

Thus, these various information sources serve several purposes : direct service activities, management, supervision, and monitoring. This integrated use of information ensures coherence in the PHC information and management system. It provides several levels of control while avoiding multiple recording of the same information.

SOME REFLECTIONS ON THE EXPERIENCES IN BENIN AND GUINEA

Despite their proximity in time, the experiences in Benin and Guinea show that these new strategies can increase maternal and child health coverage, both at a sustainable level and on a large scale. These positive effects require three conditions : increasing service effectiveness, minimizing costs, and assuring financial sustainability. However, in the implementation of these strategies, the programmes have constantly run up against problems. This chapter will focus on these problems and their proposed solutions.

Health care financing through user fees for treatments runs the risk that health staff will focus on curative services to the detriment of preventive activities, especially as the population expresses a stronger demand for curative care. To counteract this tendency, the programmes have tried to create a certain sense of rivalry among health centres, based on the presentation of monitoring results for preventive care interventions. In addition, incentive payments to health staff have been based on their performance as measured by coverage with preventive care. These incentive payments, for both preventive and curative care, are paid only for those cases treated according to the flow charts, in an effort to reduce or eliminate overprescription.

The supply of essential drugs is one of the keys to the system and it is often one of the weak points in countries with limited infrastructure. Neither Benin nor Guinea were able to totally avoid all drug shortages. Providing drugs in pre-packed kits turned out to be too rigid a supply system for the context where neither the epidemiology nor health service utilization was well understood. Local purchasing was promoted and local health staff will soon be able to resupply themselves as needed from the central level. In Benin, a central purchasing unit is being established, while in Guinea, they are reorganizing the national drug purchasing structure, Pharmaguinee, with help from the African Development Bank. The new structure will be responsible for the supply and distribution of essential drugs. In addition, to rectify the drug surpluses and shortages, a network was established to facilitate exchanges for drug stocks between health centres. However, this system can have only a limited effect, since many health centres had similar consumption patterns.

Despite the reappearance of drugs in the health centres, some health staff felt the list of essential drugs was too limited and they continued to prescribe other drugs. However, involving the health staff in the development and periodic revisions of flow charts has progressively improved their adherence to standardized treatment practice.

The local markets still play an active role as a source of drugs for the population : their pull comes from their affordable prices, easy access, and their central role as a place of social interaction.

Although health centre treatment prices, particularly for treatments considered vital, such as anti-malarials and antibiotics, were adjusted to compete with these local markets, the market remains the principal competitor of the health centres, especially for the illnesses of young children.

The first household surveys conducted have shown that actual expenditures by the sick were sometimes higher than the official fee schedule. Some health staff are charging a separate fee for their services. Implementation of the Bamako Initiative and its transparent management system presents an opposition to this practice, even though health staff salaries are extremely low in Guinea and paid irregularly in Benin. Raising user fees to cover increased indemnities for health staff while maintaining the clear pricing could make them unaffordable. Before modifying prices, one must discuss with communities and understand their expectations of the health system for price and quality. The success of the Bamako Initiative will depend on its ability to adapt to the demands and needs of the various populations involved.

After one year of functioning, it became clear that too low utilization of some centres could not assure sufficient revenue to cover local operating costs. Discussions were held with the community to address this issue. It is planned to extend certain activities to the village level, to combine some sparsely populated zones, and to continue to subsidize the poorest zones.

In some health centres, decentralizing management responsibility led to embezzlement. However, the management system, with its community control, monitoring, and supervision, was able to identify the culprits.

Irresponsible or rash expenses have been reduced by establishing budgets locally for each health centre, in function of their own financial capacity. Expenses are incurred by the Management Committee, with health staff agreement, on the basis of previous costs and revenue. However, the bankruptcy of the national banking system in the end of 1988 discouraged the communities : their efforts seemed to come to naught since they could no longer withdraw the money they had deposited in the health centre bank account. The various partners participating in these community financing projects are searching for ways to guarantee the availability of funds.

The Bamako Initiative, in its efforts to reorganize the PHC system, has sometimes run up against resistance from organizations dealing with specific services (EPI or other MCH programmes, essential drug programmes, community financing programmes). However, through quarterly meetings, it has been possible to build up an active collaboration among the various partners and to take advantage of each one's skills and experience. The additional resources have increased effectiveness.

The World Bank and the African Development Bank have analyzed the costs and financial viability of the health systems. They have recommended restructuring the Ministries of Health and decentralizing management of peripheral health services.

The World Health Organization has investigated all the aspects of the national primary health care and essential drugs policy and supports improving decentralized management.

UNICEF focuses on improving coverage of vulnerable groups with vaccinations, MCH, water supply, etc. They have helped develop the management system and participated in management training of health personnel. UNICEF has been involved in applying the Bamako Initiative principles at the commune level on a national scale, and has financed vaccine and essential drug supplies.

Certain bilateral and non-governmental organizations have provided important technical support in strengthening the health system at the intermediate and peripheral levels in many areas of these countries. The national programme directors have been able to benefit from their experiences in the realities of community management.

The commitment of the Governments of Benin and Guinea was fundamental for implementing the Bamako Initiative : they must carry out their responsibilities in planning, coordination, and evaluation of these programmes. The Governments must be capable of paying health staff salaries and of freeing up foreign exchange for purchasing essential drugs. In light of these experiences, the cost of providing essential drugs to all health centres can be estimated at US$ 1 million per year in Guinea, and at US$ 600,000 for Benin. The amount of foreign exchange required for supplying essential drugs only represents a fraction of expenditures made in foreign exchange by the private sector.

Two conditions are indispensable to the success of this policy : maintenance of the population's purchasing power and continued payment of salaries at sufficient levels. Without these two conditions, the fragile balance between the households' ability to pay for their health and cost recovery of the health system will be broken. This, in turn, could lead to a further erosion of purchasing power, failure of community financing programmes, the downfall of the health system, and a drop in the level of health protection. If these conditions are met, the health system's reorganization in line with the Bamako Initiative principles will be able to contribute to the alleviation of some of the population's health risks and to a reduction of infant and maternal mortality, even in a context of an economic crisis.

APPENDIX 1

FEE SCHEDULE FOR EPI/PHC

FEE CATEGORY	TREATMENT	DOSAGE		COST		PRICE	
		Child	Adult	Child	Adult	Child	Adult
1. Hemorrhage + shock	Dextran and Compress or bandage	1 bottle 1 roll	1 bottle 1 roll	1,105	1,105	1,500	1,500
2. Urogenital infections	ASA and CTM or Penicillin V or Procain Penicillin and Chloroquine and Bath or Atropine	9 14 28 2 g 4 1	18 28 56 4 g 15 31 1	106	335	500	1,000
3. Intestinal parasites	Atropine and Mebendazole	1 6	1 6	30	30	200	250
4. ORL infections or Broncho-pneumonia	ASA and CTM or Penicillin V or Procaine Penicillin and Chloroquine or Codeine or Boric acid	9 14 28 2 g 4	18 28 56 4 g 15	160	335	500	1,000
5. Scabies	Benzyl benzoate	40 cc	40 cc	75	75	200	200
6. Wounds	Desinfectant and Bandage or TT vaccination	2 rolls	3 rolls	125	180	50	150
7. Serious wounds	Desinfectant and Lidocain and Suture and Bandage and ASA and Procaine Penicillin or CTM or Penicillin V or TT vaccination	2 ml 1 2 9 2 g 14 28	2 ml 1 3 18 4 g 28 56	355	555	1,000	1,500
8. Infected wounds	Desinfectant and Bandage and Procaine Penicillin or CTM or Penicillin V	2 2 g 14 28	3 4 g 28 56	260	455	700	1,400
9. Circumcision phimosis	Circumcision and Paracetamol and Bandage or TT vaccination	6	12	225	300	700	1,000

FEE CATEGORY	TREATMENT	DOSAGE		COST		PRICE	
		Child	Adult	Child	Adult	Child	Adult
10. Vulvo-vaginal mycosis	Bath and Nystatine Or. and Nystatine tablets		31		45		
11. Intestinal amibea, Vaginal trichomonasis	Atropine and Metronidazole tb and Metronidazole suppositories	1 21	1 42	90	175	300	500
12. Dehydration Medical-surgical emergencies (non-hemorrhage)	Sodium lactate	1	1	385	385	1,000	1,000
13. Parental diarrhea	ORS and ASA and CTM or Penicillin V or Procaine Penicillin and Chloroquine and Boric Acid	2 9 14 28 2 g 4	4 18 28 56 4 g 15	220	455	500	1,000
14. Mild diarrhea or food poisoning	ORS Atropine	2 1	4 1	60	120	50	100
15. Gastric ulcer Gastritis	Aluminum hydroxide Atropine	30 1	60 1	80	160	250	500
16. Asthma	Aminophylline and Promethazine tb or Promethazine inj. and Expectorant	5 1 1	30 4 1	240	370	700	1,000
17. Eruptive fever (measles)	ASA and Chloroquine and Tetracycline eye ointment and Boric acid and Expectorant	9 4 1	18 15 1	355	555	500	1,000
18. ORL foreign object	Extraction and Cleaning and Boric acid and ASA	9	18			100	100
19. High fever convulsions	Diazepam injection and ASA and Quinine inj.	1 9 6	1 18 6	830	830	2,500	2,500

FEE CATEGORY	TREATMENT	DOSAGE		COST		PRICE	
		Child	Adult	Child	Adult	Child	Adult
20. Bilharzia	Praziquentel and Multivitamin/iron	1	4	315	1,155	1,000	2,000
21. Malaria	Chloroquine and ASA	4 9	15 18	15	45	50	200
22. Anemia	Iron/folic acid	30	90	15	45	50	100
23. Skin infections (eczema, zona urticaria)	Promethazine tb and ASA and Skin ointment and Gentian violet and Chlorhexidrine	1 9 11	4 18 11	160	170	500	600
24. Tenia and other fungal infections Digestive candidiasis	Nystatine tb and Nystatine ointment and Benzoic acid Salicylic acid	20 g	20 g	40	40	200	200
25. Abortion Placenta retention	D and C or Uterine revision and Ergometrine and CTM or Procaine Penicillin or Penicillin V	—	4 28 4 g 56	—	285	—	1,000
26. Malaria with allergy to chloroquine	Quinine tb and ASA	3 9	12 18	75	275	200	500
27. Hypertension	Chlorothiazide	—	30	—	45	—	150
28. Conjunctivitis	Tetracycline eye ointment	1	1			100	100
29. Prenatal Consultation	Chloroquine and Iron/folic acid and Maternal card and Child health card	— — — —	60 90 1 1				500
30. Normal delivery					Village Health Health	Centre urban Centre rural	200 1,000 500

General instructions

1. Treat malaria for 3 days 25 mg/kg
2. Antibiotic therapy for 7 days
3. Acetylsalicylic acid for 3 days
4. Paracetamol for 3 days
5. Sell whole treatment
6. Children < 6 years
   Adults ≥ 6 years

Corresponding to price categories

APPENDIX 2

DRUG & REVENUE REGISTER

MONTH OF 19

N°	Item	Form	Dosage	Unit Price	N°	Initial Stock	Quantity received	Available stock	(E) 1	(E) 31	Quantity issued	Ending theoretical stock	Actual stock inventory	Theoretical revenue index	Observations	N°
1	Acetylsalicylic acid	Tablet	500 mg		1											1
2	Benzoic acid + Salicylic acid	Lotion	6 % + 3 %		2											2
3	Aminophyllin	Tablet	100 mg		3											3
4	Anti-hemorrhoid association	Lotion			4											4
5	Anti-hemorrhoid association	suppository			5											5
—																
—																
—																
—																
—																
50					50											50
51	Number of treatment booklets				51											51
52	Number of child health cards				52											52
53	Number of deliveries				53											53
54	Number of dressings				54											54
55	Number of small surgical acts				55											55
56	Revenue from curative care				56											56
57	Revenue from MCH				57											57
58	Total daily revenue				58						a) Total theoretical revenue					58
59	Deposits				59						b) Total actual revenue					59
60					60						c) Total deposits					60
61					61						d) Balance in cash box					61
62					62						a = b + (c + d) ☐ yes ☐ no					62

(E) QUANTITIES USED ACCORDING TO TREATMENT REGISTER

APPENDIX 3

COST CALCULATIONS

FIXED COSTS

- Fuel for refrigerator : 1 liter/day × 100 FCFA/liter
- Fuel for sterilization : 10 liters/month × 100 FCFA/liter
- Gasoline for motorbike : 220 kilometers/month × 4 liters/100 km
- Office supplies : lump sum of 5,000 FCFA/month
- Gasoline for supervision : 100 kilometers/month × 15 liters/100 km
- Building maintenance : lump sum of 5,000 FCFA/month
- Contribution to Provincial Health Office : lump sum of 2,500 FCFA/month

VARIABLE COSTS

- Drugs and information tools : actual costs in the Pahou PHC Project
- Incentive payments for personnel :
  50 FCFA/curative consultation
  + 200 FCFA/child completely vaccinated
  + 200 FCFA/pregnant woman completely covered (according to criteria for adequate coverage)

88

Using an estimation of curative care utilization rate at 0.6 visits/year/person, and a coverage objective for pregnant women (5 % of total population), and a coverage objective for childhood vaccinations (5 % of total population) of 80 % = (6,000 × 0.6 × 50) + (6,000 × 0.05 × 0.80 × 200) + (6,000 × 0.6 × 0.80 × 200) = 276,000 FCFA.

- Village health worker remuneration : 10 VHW × 2,000 FCFA/month

APPENDIX 4

MONTHLY SUPERVISION OF FEES AND TREATMENTS

DISTRICT : _____

HEALTH CENTRE : _____

A Date of consultation	B Main complaints and signs	C Fee according to treatment booklet	D Fee according to receipt	E Fee according to carbon	F Fee according to treatment register	G Fee according to flow chart	H Drugs and dosages according to treatment booklet	I Drugs and quantities according to treatment register	J Drugs and dosages according to flow chart	K Fee category

	YES	NO	
C = D = E = F	☐	☐	If no, supervisee's explanation :
H = I	☐	☐	If no, supervisee's explanation :
F = G	☐	☐	If no, supervisee's explanation :
I = K	☐	☐	If no, supervisee's explanation :

— Corrective actions of supervisor :

— Date of next supervision :

Date of supervision :

Name and signature of supervisor :

APPENDIX 5

MONTHLY SUPERVISION OF FINANCIAL MANAGEMENT

DISTRICT : _____

HEALTH CENTRE : _____

Days chosen (with dates)	A Total revenue according to treatment register	B Total revenue according to MCH checklist	C Revenue received from treatments according to drug and revenue register	D MCH revenue according to drug and revenue register	E Total revenue according to account book
D_1					
D_2					
D_3					

F = Amount in cash box at last supervision .....

G = Total revenue since last supervision .....

H = Total expences since last supervision .....

I = Balance = F + G – H .....

K = Sum actually in cash box .....

.....

	YES	NO	
A = C	☐	☐	If no, supervisee's explanation :
B = D	☐	☐	If no, supervisee's explanation :
A + B = C + D = E	☐	☐	If no, supervisee's explanation :
I = K	☐	☐	If no, supervisee's explanation :

– Corrective actions of supervisor :

– Date of next supervision :

Date of supervision :

Name and signature of supervisor :

APPENDIX 6

MONTHLY SUPERVISION FORM FOR DRUG MANAGEMENT

DISTRICT : _____

HEALTH CENTRE : _____

DRUGS	A Quantity used according to treatment register	B Quantity used according to drug and revenue register	C Final theoretical stock according to drug and revenue register	D Actual quantity in stock in health centre (inventory of « daily use » stock)	E Theoretical stock in the pharmacy according to stock forms	F Actual stock in pharmacy (inventory of main stock)	G Quantity received in health centre from main stock according to drug and revenue register	H Quantity issued from main stock according to stock forms
M_1								
M_2								
M_3								

	YES	NO	
A = B	☐	☐	If no, supervisee's explanation :
C = D	☐	☐	If no, supervisee's explanation :
E = F	☐	☐	If no, supervisee's explanation :
G = H	☐	☐	If no, supervisee's explanation :

— Corrective actions of supervisor :

— Date of next supervision :

Date of supervision :

Name and signature of supervisor :

APPENDIX 7

COMPILATION FORM FOR MONITORING VACCINATION COVERAGE

DETERMINANT	INDICATOR	INFORMATION SOURCE	CALCULATION METHOD
Target population	Children born between July and December 1987	Information from Prefectural Health Office	$\frac{\text{Sub-Prefect's population} \times \text{Birth rate}}{2}$
Availability	% of time that there were no shortages of EPI vaccines	Stock forms for vaccines	List number of days WITHOUT vaccine stock shortages Divide by number of days during period
Accessibility	% of target population living less than 5 km from a fixed centre or less than 2 km from an outreach site	— Health map — Information from head nurse — Information from Management Committee	1) $\frac{\text{Population living within those radii}}{\text{Total population}}$ 2) Multiply the above number by the % availability
Utilization	% of target population having received at least one vaccination dose of EPI vaccines	— MCH cards — Outreach register — Vaccination schedule	1) Select all MCH cards for the target population 2) Count those who have received at least one vaccination 3) Divide this number by the target population and multiply result by 100
Adequate coverage	% of target population completely vaccinated before their 1st birthday with correct intervals and minimum ages	— MCH cards — Outreach register — Vaccination schedule	1) From among the MCH cards with at least one vaccination, count those where measles vaccine was delivered between 9 and 11 months of age or where DPT3 was delivered with correct intervals 2) Divide the lower of these two numbers by the target population and multiply the result by 100
Effective coverage	Adequate coverage × quality score (cold-chain and vaccination technique)	— Temperature control forms — Maintenance notebook	1) Count number of days where the temperature in refrigerator was at 0-8 °C and days where vaccines were stored in other secure places 2) Divide this number by the number of days in period 3) Multiply this result by the % adequate coverage

APPENDIX 8

COMPILATION FORM FOR CALCULATING COSTS AND COSTS/REVENUE PER PATIENT

HEALTH CENTRE	UNIT PRICE	TOTAL 6 MONTHS	JUNE 89	JULY 89	
1. Acetylsalicylic Acid 300 mg	1.28				
2. Chloroquine 100 mg base	3.83				
3. Cotrimokazole 480 mg (Sulfaméthoxazole + Triméthoprim)	10.5				
4. Dapsone 100 mg					
5. Mebendazole 100 mg	7.5				
6. Metrondiazole 250 mg	5.7				
7. Niclosamide 500 mg	18.75				
8. Praziquentel 600 mg	693				
9. Oral rehydration salts	52.5				
10. Iron + folic acid 60 mg + 0.25 mg	1.08				
11. Thiamine 50 mg	8.13				
—					
—					
—					
Health booklets	154				
Treatment booklets	47				
Receipt books	829				
Maternal cards	75				
Child health cards	75				
Vaccination cards	2.9				
Treatment register	10,000				
Drug and revenue register	10,000				
Account book	10,000				
Stock forms for drugs/vaccines	75				

TOTAL ..... _____ GF (1)

Revenue for the period evaluated = R

For the period : Number of first visits :

Number of return visits :

Number of first prenatal visits :

Number of deliveries :

TOTAL [ ] (2)

Average cost/patient = $\frac{(1)}{(2)}$

Average revenue/patient = $\frac{R}{(2)}$

Rate of recovery of medical and other expenses = $\frac{R}{(1)}$

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1978 was the year of the declaration on primary health care, in Alma Ata. Since then, many efforts have been made to solve the innumerable problems encountered in the application of this health policy, and to respond to the needs of families.

Certain aspects, such as effective community participation, the implementation of curative, preventive and educational activities as an integral part of everyday life, the improvement of health coverage and of the quality of care, have received special official attention.

This issue describes the experiments conducted in Benin and Guinea : these countries have attempted to adjust the planning of programmes to their own epidemiological reality, and to standardize all health-related activities in compliance with the local situation. To do so, they enrolled the active participation of the entire personnel and established solid training and evaluation programmes.

Furthermore, these countries have set up a system through which both the management of the health centres and much of the financial burden are in the hands of the communities themselves.

Hopefully, these highly instructive programmes will be continued and enriched, and extended to many other regions. Hopefully too, the story of their action, with its difficulties and its successes, will circulate in published form.

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